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MATERIALS FOR THE STUDY OF ELEMENTARY ECONOMICS

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PREFACE

The materials collected in this volume are intended to acquaint the student with economic principles as they are manifested in the tangible facts of economic life. A few extracts of primarily theoretical character have been included to represent important aspects of contemporary or historic thought; but for the most part the selections are not so much authoritative formulations of economic laws as concrete case-material embodying such laws, or affording a background of information which the systematic treatises on economics can hardly give and which the teacher certainly cannot often assume that his students will possess. Various sources have been drawn upon, including not only the writings of recognized economists but also official literature of governmental and private organizations, commercial and financial periodicals, and the daily press. Some of the material has been prepared especially for this book. As regards form, the selections comprise expository and descriptive readings, statutes, judicial decisions, the findings of commissions, news reports, statistical tables, schematic analyses, and a number of maps, charts, and diagrams.

In the choice of the materials the editors have been guided by actual classroom experiment. The nucleus of the book was originally printed as a series of bulletins which have for three years formed a part of the reading required of beginning students in economics at the University of Chicago. During this time unsatisfactory selections have been eliminated and much new matter has been added. Copies of the bulletins have been submitted for criticism to teachers in several other institutions. The volume which now appears may thus be said already in a measure to have demonstrated its usefulness as an aid in college instruction.

The book is not designed to take the place of a systematic textbook. Rather, it should be used in conjunction with such a text. No attempt has been made to weld the readings into a hard-and-fast system. They have purposely been left to be utilized as the preference of the individual teacher may dictate. There has been no desire to dogmatize, or to force upon the student any particular interpretation of the evidence. In some cases conflicting views are set forth in different selections in order to stimulate critical thinking; and several extracts have been included precisely because they seem to involve unsound thinking, or a point of view so remote from the academic as to deserve consideration for that very reason.

The editors wish to acknowledge their obligation to the many authors and publishers who have kindly permitted the use of extracts from copyrighted publications. Every effort has been made to give due mention of author and publisher in each instance. Where a selection is stated to be "adapted from" the writings of a certain author the reader will understand, not that the changes from the original have necessarily been considerable, but simply that some change has been made for which the author is not accountable. Where no source is indicated for a selection, either by footnote or by the obvious nature of the topic, it may be understood that the editors assume responsibility.

L. C. M.
C. W. W.
J. A. F.

September, 1913

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I. INTRODUCTORY

1. THE MALADJUSTMENT OF MAN AND NATURE[1]

The question, Why do things have the power to satisfy wants? would lead us back through physiology and psychology quite to the borders of the unknowable. The question, Why are they scarce? would lead us also toward the unknowable, but by a somewhat different route. Into this philosophical hinterland of his science the economist has generally refrained from bursting lest he should be found poaching upon the preserves of the philosopher; but there are some things in this region which, when seen through the eyes of the economist, may come to have a new significance.

Of course the first and most obvious reason for the scarcity of goods is that nature has not provided them in sufficient abundance to satisfy all the people who want them. Of some things, it is true, she is bounteous in her supply; but of others she is niggardly. Things which are so bountifully supplied as to satisfy all who want them do not figure as wealth, or economic goods, because we do not need to economize in their use. But things which are scantily supplied must be meted out and made to go as far as possible. That is what it means to economize. Because we must practice economy with respect to them they are called economic goods or wealth. In fact the whole economic system of society, the whole system of production, of valuation, of exchange, of distribution, and of consumption, is concerned with this class of goods—toward increasing their supply and making the existing supply go as far as possible in the satisfaction of wants.

The fact that there are human wants for whose satisfaction nature does not provide in sufficient abundance—in other words, the fact of scarcity—signifies that man is, to that extent at least, out of harmony with nature. The desire for fuel, clothing, and shelter grows out of the fact that the climate is more severe than our bodies are fitted to endure, and this alone argues a very considerable lack of harmony. The lack is only emphasized by the fact that it is necessary for us to labor and endure fatigue in order to provide ourselves with these means of protecting our bodies against the rigors of nature. That labor also which is expended in the production of food means nothing if not that there are more mouths to be fed, in certain regions at least, than nature has herself provided for. She must therefore be subjugated, and compelled to yield larger returns than she is willing to do of her own accord. And that expanding multitude of desires, appetites, and passions which drive us as with whips; which send us to the ends of the earth after gewgaws with which to bedeck our bodies, and after new means of tickling the five senses; which make us strive to outshine our neighbors, or at least not to be outshone by them—these even more than our normal wants show how widely we have fallen out of any natural harmony which may supposedly have existed in the past.

---

[1] Adapted from T. N. Carver, "The Economic Basis of the Problem of Evil," in *The Harvard Theological Review*, I, 98 ff. (January, 1

That there is a deeper harmony lying hidden somewhere beneath these glaring disharmonies is quite possible. Certainly no one can positively assert that it is not so. It may be true, as some profoundly believe, that these natural discomforts, with the necessity for work which accompanies them, furnish a discipline which is necessary for our highest good. Being thus driven by a *vis a tergo* toward our own highest good, we may be in harmony with our surroundings in ways which do not appear to our immediate sense of self-interest. But this whole question lies within the field of philosophical conjecture, and nothing positive can be affirmed on either side.

Whatever our belief upon that point may be, there is not the slightest doubt that men are sometimes cold and hungry and sick; and that these discomforts would be much more frequent than they now are, if men did not work to prevent them. But work causes fatigue. Obviously the individual cannot be expected to see in this situation any sign of a complete harmony between himself and his material environment. So far as the individual can see and understand, the lack of harmony between himself and nature is a very real one.

Viewed from this standpoint, the whole economic struggle becomes an effort to attain to a harmony which does not naturally exist. As is well known, the characteristic difference between the non-economizing animals, on the one hand, and man, the economizer, on the other, is that in the process of adaptation the animals are passively adapted to their environment, whereas man assumes the active rôle in attempting to adapt his environment to himself. If the climate is cold, animals must develop fur or blubber; but man builds fires, constructs shelters, and manufactures clothing. If there are enemies to fight against, the animals must develop claws or fangs, horns or hoofs, whereas man makes bows and arrows, or guns and ammunition. The whole evolutionary process, both passive and active, both biological and economic, is a development away from less toward greater adaptation, from less toward greater harmony between the species and its environment.

That phase of the disharmony between man and nature which takes the form of scarcity gives rise also to a disharmony between man and man. Where there is scarcity there will be two men wanting the same thing; and where two men want the same thing there is an antagonism of interests. Where there is an antagonism of interests between man and man there will be questions to be settled, questions of right and wrong, of justice and injustice; and these questions could not arise under any other condition. The antagonism of interests is, in other words, what gives rise to a moral problem, and it is, therefore, about the most fundamental fact in sociology and moral philosophy.

This does not overlook the fact that there are many harmonies between man and man, as there are between man and nature. There may be innumerable cases where all human interests harmonize, but these give rise to no problem and therefore we do not need to concern ourselves with them. As already pointed out, there are many cases where man and nature are in complete harmony. There are things, for example, which nature furnishes in sufficient abundance to satisfy all our wants; but these also give rise to no problem. Toward these non-economic goods our habitual attitude is one of indifference or unconcern. Where the relations between man and nature are perfect, why should we concern ourselves about them? But the whole industrial world is bent on improving those relations where they are imperfect. Similarly with the relations between man and man; where they are perfect, that is, where interests are all harmonious, why should we concern ourselves about them? As a matter of fact we do not. But where they are imperfect, where interests are antagonistic and trouble is constantly arising, we are compelled to concern ourselves whether we want to or not. As a matter of fact, we do concern ourselves in various ways; we work out systems of moral philosophy and theories of justice after much disputation; we establish tribunals where, in the midst of much wrangling, some of these theories are applied to the settlement of actual conflicts; we talk and argue interminably about the proper adjustment of antagonistic interests of various kinds, all of which, it must be remembered, grow out of the initial fact of scarcity—that there are not as many things as people want.

Fundamentally, therefore, there are only two practical problems imposed upon us. The one is industrial and the other moral; the one has to do with the improvement of the relations between man and nature, and the other with the improvement of the relations between man and man. But these two primary problems are so inextricably intermingled, and they deal with such infinitely varying factors, that the secondary and tertiary problems are more than we can count.

But whence arises that phase of the conflict with nature out of which grows the conflict between man and man? Is man in any way responsible for it, or is it due wholly to the harshness or the niggardliness of nature? The fruitfulness of nature varies, of course, in different environments. But in any environment there are two conditions, for both of which man is in a measure responsible, and either of which will result in economic scarcity. One is the indefinite expansion of human wants, and the other is the multiplication of numbers. The well-known expansive power of human wants, continually running beyond the power of nature to satisfy, has attracted the attention of moralists in all times and places. . . . . Even if the wants of the individual never expanded at all, it is quite obvious that an indefinite increase in the number of individuals in any locality would, sooner or later, result in scarcity and bring them into conflict with nature, and therefore into conflict with one another.

These considerations reveal a third form of conflict—perhaps it ought to be called the second—a conflict of interests within the individual himself. If the procreative and domestic instincts are freely gratified, there will inevitably result a scarcity of means of satisfying other desires, however modest those desires may be, through the multiplication of numbers. Either horn of the dilemma leaves us with unsatisfied desires of one kind or another. We are therefore pulled in two directions, and this also is a condition from which there is no possible escape. But this is only one illustration of the internal strife which tears the individual. The very fact of scarcity means necessarily that if one desire is satisfied it is at the expense of some other. What I spend for luxuries I cannot spend for necessaries; what I spend for clothing I cannot spend for food; and what I spend for one kind of food I cannot spend for some other. This is the situation which calls for economy, since to economize is merely to choose what desires shall be gratified, knowing that certain others must, on that account, remain ungratified. Economy always and everywhere means a threefold conflict: a conflict between man and nature, between man and man, and between the different interests of the same man.

In this antagonism of interests, growing out of scarcity, the institutions of property, of the family, and of the state, all have their common origin. No one, for example, thinks of claiming property in anything which exists in sufficient abundance for all. But when there is not enough to go around, each unit of the supply becomes a prize for somebody, and there would be a general scramble, did not society itself undertake to determine to whom each unit should belong. Possession, of course, is not property; but when society recognizes one's right to a thing, and undertakes to protect him in that right, that is property. Wherever society is sufficiently organized to recognize these rights and to afford them some measure of protection, there is a state; and there is a family wherever there is a small group within which the ties of blood and kinship are strong enough to overcome any natural rivalry and to create a unity of interests. This unity of economic interests within the group is sufficient to separate it from the rest of the world, or from other similar groups among which the natural rivalry of interests persists. Saying nothing of the barbaric notion that wives and children are themselves property, even in the higher types of society it is the desire to safeguard those to whom one is bound by ties of natural affection, by sharing the advantages of property with them, which furnishes the basis for the legal definition of the family group.

Closely associated with the right of property—as parts of it in fact—is a group of rights such as that of contract, of transfer, of bequest, and a number of other things with which lawyers occupy themselves. It would be difficult to find any question in the whole science of jurisprudence, or of ethics, or politics, or any of the social sciences for that matter, which does not grow out of the initial fact of economic scarcity and the consequent antagonism of interests among men. This reveals, as nothing else can, the underlying unity of all the social sciences, that is, of all the sciences which have to do with the relations between man and man; and it shows very clearly that the unifying principle is an economic one. Even the so-called gregarious instinct may very probably be the product of the struggle for existence, which, in turn, is the product of scarcity—the advantage of acting in groups being the selective agency in the development of this instinct. But that question, like a great many others, lies beyond the field of positive knowledge. This does not necessarily constitute economics as the "master science," with the other social sciences subordinate to it; but it does signify that, if there is such a thing as a master science, economics has the first claim to that position among the social sciences. The economic problem is the fundamental one, out of which all other social and moral problems have grown.

It would be interesting to follow up our conclusion with an examination of the possibilities of escape from the situation which is imposed upon us by economic scarcity. Out of the view that the conflict of man with nature is a source of evil grow two widely different practical conclusions as to social conduct. If we assume that nature is beneficent and man at fault, the conclusion follows as a matter of course that desires must be curbed and brought into harmony with nature, which is closely akin to Stoicism, if it be not its very essence. But if, on the contrary, we assume that human nature is sound, then the only practical conclusion is that external nature must be coerced into harmony with man's desires and made to yield more and more for their satisfaction. This is the theory of the modern industrial spirit in its wild pursuit of wealth and luxury. Complete escape, by either of these methods, seems to be cut off, in the first place by the refusal of desires, especially the elementary ones, to be repressed, and, in the second place, by the utter impossibility of increasing goods to a point which will provide for every possible increase in population when population is unchecked by economic motives. If economic motives continue to operate as a check upon population, that is in itself an evidence of continued scarcity. But if they do not operate, and the procreative instincts are given free play, there is absolutely no limit to the increase of population.

But even under the conditions of economic scarcity there would be no antagonism of interests between man and man if human nature were to undergo a change by which altruism were to replace egoism. If I could develop the capacity to enjoy food upon my neighbor's palate as well as upon my own, as I have already developed the capacity to enjoy it upon the palates of my children, and if my neighbor could develop a like regard for me, obviously there could be no antagonism of interests between us on the subject of food. Let this capacity become universal, and the moral problem would be solved. That would be the Christian's Millennium. Whether this way of escape lies open or not, in other words, whether such a change in human nature is possible or not, is a problem for the psychologist or the religionist. That we may approach it indefinitely seems reasonable, but that it is ever attainable, either by the method of biological evolution or of evangelization, or by both combined, is by no means a foregone conclusion. It is certainly a long way off. Meanwhile what are we to do?

We may escape from some of the worst features of the situation by working along several lines at the same time. Every improvement in the arts of production, whereby a given quantity of labor is enabled to produce a larger quantity of the means of satisfying wants, tends, of course, in some degree to alleviate scarcity. If this can be supplemented by the doctrine of the simple life, made effective especially in the lives of the wealthier classes, so much the better; for then there will be fewer wants to satisfy. If this result can be still further strengthened by a rising sense of the responsibilities of parenthood, whereby the reckless spawning of population can be checked, especially among those classes who can least afford to spawn, the discrepancy between numbers and provisions will be kept at a minimum. Again, a more widespread spirit of altruism, or even a milder and more enlightened egoism such as that which moves the farmer to take delight in the sleek appearance of his horses, or the English landlord to take pride in the comfortable appearance of his tenants and cotters, would go a long way toward softening the antagonism of interests among men.

In spite of all these methods, however, there will still be antagonistic interests to be adjudicated. The state must therefore continue to administer justice. But every improvement in our conceptions of justice, as well as in the machinery for the administration of justice, whereby a closer approximation to exact justice may be secured, will make for social peace; though the mere adjudication of conflicting interests will not remove the conflicts themselves nor their cause. That lies deeper than legislatures or courts can probe.

These conclusions sound commonplace enough, and are doubtless disappointing to those who hope for a new earth through some engine of social regeneration. The old world is already pegging away, and has been for a very long time, upon all the plans which have been mentioned in this paper. But after all, the old world is wise—much wiser than any man, though there are some men who think otherwise.

Note.—Professor Carver has sometimes indicated the field of economics by means of the following diagram:

The attempt to secure a better adjustment of man and nature is a process of adaptation
- Passive adaptation in which man is passively adapted to his environment, e. g., by taking on fat in Arctic regions. The economist is not concerned with passive adaptation
- Active adaptation in which man adapts his environment to himself
  - Physical processes
    - I. Production of } Wealth and services
    - II. Exchange of } Wealth and services
    - III. Consumption of } Wealth and services
  - Psychical processes (valuation)
    - I. Valuation of material goods
      - 1. Consumers' goods
      - 2. Producers' goods
        - *a*) Land and natural agents
        - *b*) Capital
        - *c*) Laborers (where slavery exists)
    - II. Valuation of services
      - 1. Of land and natural agents (rent)
      - 2. Of capital (interest)
      - 3. Of laborers (wages)
      - 4. Of enterprisers (profits)

2. MAN'S ADAPTATION OF HIS ENVIRONMENT[1]

Man, and man alone of living creatures, neither submitted to the sentence of death pronounced by nature against all the creatures to whom she denied the means for continued existence, nor directed his efforts to alter his corporeal organization to suit murderous natural conditions. He made some alteration in his diet, took to eating meat instead of the fruits, roots, eggs, jelly- and shell-fish that were natural to him; but in essentials he remained unchanged. He did not grow a fur coat. On the contrary, he lost the covering of hair that had not been a protection against the cold so much as a means of strengthening his skin and preserving it against insects, sunburn, and rain, and perhaps of adorning it. He did not harden himself to bid defiance to the open weather, after the fashion of the beasts of the fields and of the woods. He did not strain after the mane and claws of the lion, the iron muscle and complicated digestion of the cud-chewing ox. On the contrary, he invented a mode of adjustment surpassing the ingenuity of any previous creature on the earth. Instead of altering himself, he directed his efforts to the alteration of external conditions. Instead of trying to fit his organism into an environment that had become incompatible with his needs, he tried to adapt that environment to his organism and its needs.

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[1] From Nordau, *The Interpretation of History*, pp. 137–40. Moffat, Yard & Co., 1911.

This new and peculiarly human method of adjustment is still going on, and will probably never cease. It is incessantly becoming more delicate, skilful, and complete; all man's gifts are devoted to it; it is, as a matter of fact, the sole distinct meaning which the impartial observer can discern in the course of history; it determines all human events that are determined by the will of man rather than the order of nature. According to all biological laws, man should have disappeared from the surface of the earth with the first Ice Age, just as every other living thing before him vanished so soon as the free gifts of nature no longer satisfied its organic needs. But he maintained himself in defiance of nature. Instead of submitting, he advanced resolutely to the combat. His survival is a rebellion against the sentence of death pronounced against him, and still valid. . . . . Everywhere, and at every hour, he has to wrest from nature the necessities of existence with his own hands. From birth to death he surrounds himself with artificial conditions; if he neglects them for a moment, his life is in imminent danger. His body has to be protected. In very warm climates, clothing, like tattooes and scars, the various ornaments in nose and lips, the hanging of trinkets round the neck, on breast and limbs, may have originated as a form of adornment and distinction; but in colder latitudes the covering of the body was mainly due to the necessity of keeping warm. Man makes his supreme discovery, never surpassed or equalled—the kindling and keeping up of fire. With its aid he secures the degree of warmth helpful and agreeable to him, which the chemical action of his own cells cannot provide; by using fire in the preparation of his foods he simplifies digestion, and is enabled to extract nutriment of various natural kinds that he could not otherwise have enjoyed. Moreover, he acquires an instrument that spares much expenditure on muscular strength, and makes possible exertions that muscle alone could not have accomplished. Many animals whose absolute needs are satisfied by nature need over and above a nest or shelter, and man most of all. He soon ceased to depend on the holes which he found ready made, and began to dig out or build up roofs and walls. In this way he secured, within his own small circle, that protection from the wind, that dryness and warmth, that the open air no longer afforded. He artificially created the climate that he thought suited him. With ever active inventiveness and ardent zeal, he wrested from his environment everything that it denied him, which he could not as yet do without. His whole existence is as paradoxical as that of the diver in the depths of the sea. Destruction threatens it whenever one of the manifold precautions erected by man for his own preservation is disturbed. Goethe's Homunculus, who can only live in the retort in which he was created, and must instantly perish with the breaking of his glass, appears one of the most far-fetched and unreal creations of the poetic imagination. As a matter of fact, it is reality itself, a perfect symbol of the relations of man to nature. The artificial protections that inclose him are like the glass retort; if he emerge from them and stand, naked as he was born, face to face with nature, he must perish without hope, and descend to the fossils which once lived and flourished so long as nature permitted, and disappeared without a struggle when warmth and nourishment were withdrawn from them.

3. WAYS OF GETTING A LIVING[1]

- WAYS OF GETTING A LIVING
  - I. Uneconomical
    - 1. Destructive
      - War
      - Piracy
      - Plunder
      - Swindling
      - Counterfeiting
      - Adulteration of goods
      - Monopolizing
    - 2. Neutral
      - Marrying wealth
      - Inheriting wealth
      - Benefiting through a rise in land values
  - II. Economical
    - 1. Primary industries
      - Farming
      - Mining
      - Hunting
      - Fishing
      - Lumbering
    - 2. Secondary industries
      - Manufacturing
      - Transporting
      - Storing
      - Merchandising
    - 3. Personal or professional service
      - Healing
      - Teaching
      - Inspiring
      - Governing
      - Amusing
      - etc.

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[1] From T. N. Carver, *Principles of Rural Economics*, p. xx. Ginn & Co., 1911.

4. COMPETITION AND THE INDUSTRIAL REVOLUTION[1]

The contrast between the industrial England of 1760 and the industrial England of today is not only one of external conditions. Side by side with the revolution which the intervening century has effected in the methods and organization of production, there has taken place a change no less radical in men's economic principles and in the attitude of the state to individual enterprise. England in 1760 was still to a great extent under the mediaeval system of minute and manifold industrial regulations. That system was indeed decaying, but it had not yet been superseded by the modern principle of industrial freedom. To understand the origin of the mediaeval system we must go back to a time when the state was still conceived of as a religious institution with ends that embraced the whole of human life. In an age when it was deemed the duty of the state to watch over the individual citizen in all his relations, and provide not only for his protection from force and fraud, but for his eternal welfare, it was but natural that it should attempt to insure a legal rate of interest, fair wages, honest wares. Things of vital importance to man's life were not to be left to chance or self-interest to settle. For no philosophy had as yet identified God and Nature; no optimistic theory of the world had reconciled public and private interest. And at the same time, the smallness of the world and the community, and the comparative simplicity of the social system made the attempt to regulate the industrial relations of men less absurd than it would appear to us in the present day.

This theory of the state, and the policy of regulation and restriction which sprang from it, still largely affected English industry at the time when Adam Smith wrote. There was, indeed, great freedom of internal trade; there were no provincial customs-barriers as in contemporary France and Prussia. Adam Smith singled out this fact as one of the main causes of English prosperity, and to Colbert and Stein, and other admirers of the English system, such freedom appeared as an ideal to be constantly striven after. But though internal trade was free for the passage of commodities, yet there still existed a network of restrictions on the mobility of labor and capital. By the law of apprenticeship no person could follow any trade till he had served his seven years. The operation of the law was limited, it is true, to trades already established in the fifth year of Elizabeth, and obtained only in market towns and cities. But wherever there was a municipal corporation, the restrictions which they imposed made it generally impossible for a man to work unless he was a freeman of the town, and this he could as a rule become only by serving his apprenticeship. Moreover, the corporations supervised the prices and qualities of wares. In the halls, where the smaller manufacturers sold their goods, all articles exposed for sale were inspected. The mediaeval idea still obtained that the state should guarantee the genuineness of wares; it was not left to the consumer to discover their quality. And in the Middle Ages, no doubt, when men used the same things from year to year, a proper supervision did secure good work. But with the expansion of trade it ceased to be effective. Sir Josiah Child already recognized that changes of fashion must prove fatal to it, and that a nation which intended to have the trade of the world must make articles of every quality. Yet the belief in the necessity of regulation was slow in dying out, and fresh acts to secure it were passed as late as George II's reign. . . . .

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[1] Adapted from Arnold Toynbee, *The Industrial Revolution*, chaps. vii and viii

The essence of the Industrial Revolution is the substitution of competition for the mediaeval regulations which had previously controlled the production and distribution of wealth. Competition, we have now learnt, is neither good nor evil in itself; it is a force which has to be studied and controlled; it may be compared to a stream whose strength and direction have to be observed, that embankments may be thrown up within which it may do its work harmlessly and beneficially. But at the period we are considering it came to be believed in as a gospel, and, the idea of necessity being superadded, economic laws deduced from the assumption of universal unrestricted competition were converted into practical precepts, from which it was regarded as little short of immoral to depart.

Coming to the facts of the Industrial Revolution, the first thing that strikes us is the far greater rapidity which marks the growth of population. Before 1751 the largest decennial increase, so far as we can calculate from our imperfect materials, was 3 per cent. For each of the next three decennial periods the increase was 6 per cent; then between 1781 and 1791 it was 9 per cent; between 1791 and 1801, 11 per cent; between 1801 and 1811, 14 per cent; between 1811 and 1821, 18 per cent. This is the highest figure ever reached in England, for since 1815 a vast emigration has been always tending to moderate it; between 1815 and 1880 over eight millions (including Irish) have left our shores. But for this our normal rate of increase would be 16 or 18 instead of 12 per cent in every decade.

Next we notice the relative and positive decline in the agricultural population. In 1811 it constituted 35 per cent of the whole population of Great Britain; in 1821, 33 per cent; in 1831, 28 per cent. And at the same time its actual numbers have decreased. In 1831 there were 1,243,057 adult males employed in agriculture in Great Britain; in 1841 there were 1,207,989. In 1851 the whole number of persons engaged in agriculture in England was 2,084,153; in 1861 it was 2,010,454, and in 1871 it was 1,657,138. Contemporaneously with this change, the center of density of population has shifted from the Midlands to the North; there are at the present day 458 persons to the square mile in the counties north of the Trent, as against 312 south of the Trent. And we have lastly to remark the change in the relative population of England and Ireland. Of the total population of the three kingdoms, Ireland had in 1821 32 per cent, in 1881 only 14.6 per cent.

An agrarian revolution plays as large part in the great industrial change of the end of the eighteenth century as does the revolution in manufacturing industries, to which attention is more usually directed. Our next inquiry must therefore be: What were the agricultural changes which led to this noticeable decrease in the rural population? The three most effective causes were: the destruction of the common-field system of cultivation; the enclosure, on a large scale, of common and waste lands; and the consolidation of small farms into large. We have already seen that while between 1710 and 1760 some 300,000 acres were enclosed, between 1760 and 1843 nearly 7,000,000 underwent the same process. Closely connected with the enclosure system was the substitution of large for small farms. The process went on uninterruptedly into the present century. Cobbett, writing in 1826, says: "In the parish of Burghclere one single farmer holds under Lord Carnarvon, as one farm, the lands that those now living remember to have formed fourteen farms, bringing up in a respectable way fourteen families." The consolidation of farms reduced the number of farmers, while the enclosures drove the laborers off the land, as it became impossible for them to exist without their rights of pasturage for sheep and geese on common lands.

Severely, however, as these changes bore upon the rural population, they wrought, without doubt, distinct improvement from an agricultural point of view. They meant the substitution of scientific for unscientific culture. "It has been found," says Laurence, "by long experience, that common or open fields are great hindrances to the public good, and to the honest improvement which every one might make of his own." Enclosures brought an extension of arable cultivation and the tillage of inferior soils; and in small farms of 40 to 100 acres, where the land was exhausted by repeated corn crops, the farm buildings of clay and mud walls and three-fourths of the estate often saturated with water, consolidation into farms of 100 to 500 acres meant rotation of crops, leases of nineteen years, and good farm buildings. The period was one of great agricultural advance; the breed of cattle was improved, rotation of crops was generally introduced, the steam-plough was invented, agricultural societies were instituted. In one respect alone the change was injurious. In consequence of the high prices of corn which prevailed during the French war, some of the finest permanent pastures were broken up. Still, in spite of this, it was said in 1813 that during the previous ten years agricultural produce had increased by one-fourth, and this was an increase upon a great increase in the preceding generation.

Passing to manufactures, we find here the all-prominent fact to be the substitution of the factory for the domestic system, the consequence of the mechanical discoveries of the time. Four great inventions altered the character of the cotton manufacture; the spinning-jenny, patented by Hargreaves in 1770; the water-frame, invented by Arkwright the year before; Crompton's mule introduced in 1779, and the self-acting mule, first invented by Kelly in 1792, but not brought into use till Roberts improved it in 1825. None of these by themselves would have revolutionized the industry. But in 1769—the year in which Napoleon and Wellington were born—James Watt took out his patent for the steam-engine. Sixteen years later it was applied to the cotton manufacture. In 1785 Boulton and Watt made an engine for a cotton-mill at Papplewick in Notts, and in the same year Arkwright's patent expired. These two facts taken together mark the introduction of the factory system. But the most famous invention of all, and the most fatal to domestic industry, the power-loom, though also patented by Cartwright in 1785, did not come into use for several years, and till the power-loom was introduced the workman was hardly injured. At first, in fact, machinery raised the wages of spinners and weavers owing to the great prosperity it brought to the trade. In fifteen years the cotton trade trebled itself; from

1788 to 1803 has been called "its golden age"; for, before the power-loom but after the introduction of the mule and other mechanical improvements by which for the first time yarn sufficiently fine for muslin and a variety of other fabrics was spun, the demand became such that "old barns, carthouses, out-buildings of all descriptions were repaired, windows broke through the old blank walls, and all fitted up for loom-shops; new weavers' cottages with loom-shops arose in every direction, every family bringing home weekly from 40 to 120 shillings per week." At a later date, the condition of the workman was very different. Meanwhile, the iron industry had been equally revolutionized by the invention of smelting by pit-coal brought into use between 1770 and 1750, and by the application in 1788 of the steam-engine to blast furnaces. In the eight years which followed this latter date, the amount of iron manufactured nearly doubled itself.

A further growth of the factory system took place independent of machinery, and owed its origin to the expansion of trade, an expansion which was itself due to the great advance made at this time in the means of communication. The canal system was being rapidly developed throughout the country. In 1777 the Grand Trunk canal, 96 miles in length, connecting the Trent and Mersey, was finished; Hull and Liverpool were connected by one canal while another connected them both with Bristol; and in 1792, the Grand Junction canal, 90 miles in length, made a waterway from London through Oxford to the chief midland towns. Some years afterward, the roads were greatly improved under Telford and Macadam; between 1818 and 1829 more than a thousand additional miles of turnpike road were constructed; and the next year, 1830, saw the opening of the first railroad. These improved means of communication caused an extraordinary increase in commerce, and to secure a sufficient supply of goods it became the interest of the merchants to collect weavers around them in great numbers, to get looms together in a workshop, and to give out the warp themselves to the workpeople. To these latter this system meant a change from independence to dependence; at the beginning of the century the report of a committee asserts that the essential difference between the domestic and the factory system is, that in the latter the work is done "by persons who have no property in the goods they manufacture." Another direct consequence of this expansion of trade was the regular recurrence of periods of over-production and of depression, a phenomenon quite unknown under the old system, and due to this new form of production on a large scale for a distant market.

These altered conditions in the production of wealth necessarily involved an equal revolution in its distribution. In agriculture the prominent fact is an enormous rise in rents. Up to 1795, though they had risen in some places, in others they had been stationary since the Revolution. But between 1790 and 1833, according to Porter, they at least doubled. In Scotland, the rental of land, which in 1795 had amounted to £2,000,000, had risen in 1815 to £5,278,685. A farm in Essex, which before 1793 had been rented at 10*s* an acre, was let in 1812 at 50*s*, though six years after, this had fallen again to 35*s*. In Berks and Wilts, farms which in 1790 were let at 14*s*, were let in 1810 at 70*s*, and in 1820 at 50*s*. Much of this rise, doubtless, was due to money invested in improvements—the first Lord Leicester is said to have expended £400,000 on his property—but it was far more largely the effect of the enclosure system, of the consolidation of farms, and of the high price of corn during the French war. Whatever may have been its causes, however, it represented a great social revolution, a change in the balance of political power and in the relative position of classes. The farmers shared in the prosperity of the landlords; for many of them held their farms under beneficial leases, and made large profits by them. In consequence, their character completely changed; they ceased to work and live with their laborers, and became a distinct class. The high prices of the war time thoroughly demoralized them, for their wealth then increased so fast that they were at a loss what to do with it. Cobbett has described the change in their habits, the new food and furniture, the luxury and drinking, which were the consequences of more money coming into their hands than they knew how to spend. Meanwhile, the effect of all these agrarian changes upon the condition of the laborer was an exactly opposite and most disastrous one. He felt all the burden of high prices, while his wages were steadily falling, and he had lost his common-rights. It is from this period, viz., the beginning of the present century, that the alienation between farmer and laborer may be dated.

Exactly analogous phenomena appeared in the manufacturing world. The new class of great capitalist employers made enormous fortunes, they took little or no part personally in the work of their factories, their hundreds of workmen were individually unknown to them; and as a consequence, the old relations between masters and men disappeared, and a "cash nexus" was substituted for the human tie. The workmen on their side resorted to combination, and trades unions began a fight which looked as if it were between mortal enemies rather than joint producers. The misery which came upon large sections of the working people at this epoch was often, though not always, due to a fall in wages, for, as I said above, in some industries they rose. But they suffered likewise from the conditions of labor under the factory system, from the rise of prices, especially from the high price of bread before the repeal of the corn-laws, and from those sudden fluctuations of trade, which, ever since production has been on a large scale, have exposed them to recurrent periods of bitter distress. The effects of the Industrial Revolution prove that free competition may produce wealth without producing well-being. We all know the horrors that ensued in England before it was restrained by legislation and combination.

5. EXCHANGE CO-OPERATION[1]

It is the great multiplication of the productions of all the different arts, in consequence of the division of labor, which occasions, in a well-governed society, that universal opulence which extends itself to the lowest ranks of the people. Every workman has a great quantity of his own work to dispose of beyond what he himself has occasion for; and every other workman being exactly in the same situation, he is enabled to exchange a great quantity of his own goods for a great quantity, or, what comes to the same thing, for the price of a great quantity of theirs. He supplies them abundantly with what they have occasion for, and they accommodate him as amply with what he has occasion for, and a general plenty diffuses itself through all the different ranks of the society.

Observe the accommodation of the most common artificer or day-laborer in a civilized and thriving country, and you will perceive that the number of people of whose industry a part, though but a small part, has been employed in procuring him this accommodation, exceeds all computation. The woolen coat, for example, which covers the day-laborer, as coarse and rough as it may appear, is the produce of the joint labor of a great multitude of workmen. The shepherd, the sorter of the wool, the wool-comber or carder, the dyer, the scribbler, the spinner, the weaver, the fuller, the dresser, with many others, must all join their different arts in order to complete even this homely production. How many merchants and carriers, besides, must have been employed in transporting the materials from some of those workmen to others who often live in a very distant part of the country! How much commerce and navigation in particular, how many ship-builders, sailors, sail-makers, rope-makers, must have been employed in order to bring together the different drugs made use of by the dyer, which often come from the remotest corners of the world! What a variety of labor too is necessary in order to produce the tools of the meanest of those workmen! To say nothing of such complicated machines as the ship of the sailor, the mill of the fuller, or even the loom of the weaver, let us consider only what a variety of labor is requisite in order to form that very simple machine, the shears with which the shepherd clips the wool. The miner, the builder of the furnace for smelting the ore, the feller of the timber, the burner of the charcoal to be made use of in the smelting-house, the brickmaker, the bricklayer, the workmen who attend the furnace, the millwright, the forger, the smith, must all of them join their different arts in order to produce them. Were we to examine, in the same manner, all the different parts of his dress and household furniture, the coarse linen shirt which he wears next his skin, the shoes which cover his feet, the bed which he lies on, and all the different parts which compose it, the kitchen-grate at which he prepares his victuals, the coals which he makes use of for that purpose, dug from the bowels of the earth, and brought to him perhaps by a long sea and a long land carriage, all the other utensils of his kitchen, all the furniture of his table, the knives and forks, the earthen or pewter plates upon which he serves up and divides his victuals, the different hands employed in preparing his bread and his beer, the glass window which lets in the heat and the light, and keeps out the wind and the rain, with all the knowledge and art requisite for preparing that beautiful and happy invention, without which these northern parts of the world could scarce have afforded a very comfortable habitation, together with the tools of all the different workmen employed in producing those different conveniencies; if we examine, I say, all these things, and consider what a variety of labor is employed about each of them, we shall be sensible that without the assistance and co-operation of many thousands, the very meanest person in a civilized country could not be provided, even according to, what we very falsely imagine, the easy and simple manner in which he is commonly accommodated. Compared, indeed, with the more extravagant luxury of the great, his accommodation must no doubt appear extremely simple and easy; and yet it may be true, perhaps, that the accommodation of an European prince does not always so much exceed that of an industrious and frugal peasant, as the accommodation of the latter exceeds that of many an African king, the absolute master of the lives and liberties of ten thousand naked savages.

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[1] From Adam Smith, *The Wealth of Nations*, Book I, chap. i.

II. WANTS AND THE MEANS OF THEIR SATISFACTION

6. A STUDY OF HUMAN WANTS

A complete understanding of modern industrial society would obviously involve an understanding of its motive forces. Very likely we shall never know all the details of all the motive forces actuating society. Nevertheless, some few propositions seem reasonably clear and it is worth while to set these forth.

We know that one of the basic social facts is the very commonplace one that Nature does not spontaneously furnish means of satisfaction for all our wants, or even for most of them. We know that this fact serves largely to explain the struggles of man with nature and the struggles of man with man. It follows, accordingly, that a study of the characteristics of human wants should reveal many of the motive forces behind modern society. This field of study, enormous in extent and baffling in its elusiveness, clearly belongs to the psychologist. The economist can make no pretense of originality or comprehensiveness in dealing with such a subject. He must rest content with selecting a few propositions having significance for his purposes.

1. *There seems to be little or no cause to hope that the sum total of human wants will ever be sated.* Hearn, in his *Plutology*, has discussed this matter at considerable length.

"Food, drink, air, and warmth are the most urgent . . . . necessities. . . . . These necessities man shares with all other animals. . . . . He has also, beyond all other creatures, other faculties, which, besides their own requirements, seriously affect the gratification of the primary appetites; for man is able not merely to satisfy his primary wants, but to devise means for their better and more complete gratification. . . . . He alone has cooked his food. He alone has infused his drink. He alone has discovered new kinds of food or drink. He alone has improved the construction of his dwelling, and has provided for its ventilation. He alone clothes his body, and varies that clothing according to the changes of temperature or his own ideas of decoration. He alone is not content with the mere satisfaction, in whatever manner, of his physical wants, but exercises a selection as to the mode of their satisfaction. So strong in him is this tendency to the adaptation of his means that, in favorable circumstances, he regards the preparation of the objects which are intended for his gratification as of hardly less importance than the gratification itself. Thus the comparative range of human wants is rapidly increased. When the question of degree is admitted in the satisfaction of the primary appetites, and when the greater or less adaptability of various objects to satisfy these appetites is recognized, the extent of human desires is bounded only by the extent of human skill.

"As the attempt to satisfy the primary appetites thus gives rise to new desires, so the actual increase of these desires tends of itself to a still further development. The enjoyment that a man has once received he generally desires to renew. The mere repetition soon becomes a reason for its further repetition. By the powerful influence of habit the desire becomes a taste, and the taste quickly passes into an absolute want. Nor is this all. The mere exercise of the faculties strengthens them, and gives rise to a comparison of results and a desire for further improvement. The man whose senses are educated to a certain point, who has had to a certain extent experience of different modes of satisfying his desires, and has formed a judgment upon the comparative efficiency of these modes, will seldom, in favorable circumstances, stop at that point. Not merely would a return to what pleased his untaught faculties be intolerable to him, but the actual enjoyment which he derives from his discovery stimulates him to further advances, and suggests the modes of obtaining them. Thus while man is not guided and limited by a blind instinct, but each individual is left free to rise or fall according to the exercise of his powers, provision is made, even in the primary wants of our nature, both to prevent the retrogression of the species and to secure its advancement. The number of wants that belongs to this class is therefore limited, as I have said, by our knowledge of the properties of matter or of material objects fitted to satisfy our wants, and by our skill in their adaptation. This knowledge and this skill continually increase; and as the limit they present recedes, the range of our tastes and of our artificial wants increases with them.

"There are other important respects in which human wants differ from those of the inferior animals. In addition to those primary appetites which he shares with the humblest living creature, and which relate exclusively to things, man has also, in a peculiar degree, affections which relate to persons; and various desires which are only conceivable with reference to abstractions, and result not from any physical antecedent but from operations of the mind. By the aid of memory, which recalls the past; and of imagination, which represents the distant, the absent, and the future; and of reason, which exercises a judgment upon the utility present or prospective of an object, and upon the means of obtaining it, man forms desires concerning his personal safety, his family, and his property. These desires, like those already described, become, by the force of habit, daily more persistent and intense. To this class of desires no limit can be assigned other than the mental powers of each individual. These wants, except those relating to the family, might arise in a man isolated from all other beings of the same kind. But man is by the constitution of his nature a social being. Beginning with the family, he soon forms relations with other men, and lives, and moves, and has his being in society. Hence arise new desires, each of which, like every other desire, is intensified and confirmed by habit. Man is imitative, and so seeks to have what his neighbor enjoys; he is vain, and so desires to display himself and his possessions with advantage before his fellows; he loves superiority, and so seeks to show something that others have not; he dreads inferiority, and so seeks to possess what others also possess. Hence it is that, as daily experience teaches us, no man ever attains the state in which he has no wish ungratified. The greater the development of the mental and moral faculties, the greater will be the number of desires; the more continuous the gratification of these desires, the more confirmed will be the habit.

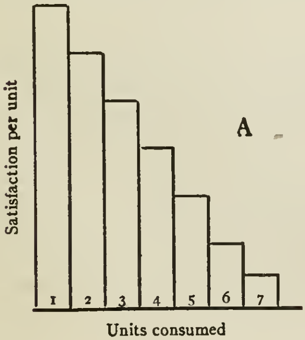
"Not merely is the amount of human desire indefinite, but the modes in which desire in many different individuals is manifested are equally without any practical limit. Even in the primary appetites there is room for great diversity, according to differences of climate, age, sex, and other considerations, in the choice of food, and the construction of houses, and the fashion of clothes. In the desires which are peculiar to man we seldom find agreement. The diversity of individual tastes is proverbial. Two persons will often regard with very different feeling the same object. The same man will at different times and in different circumstances experience great changes in his desires and his aversions.

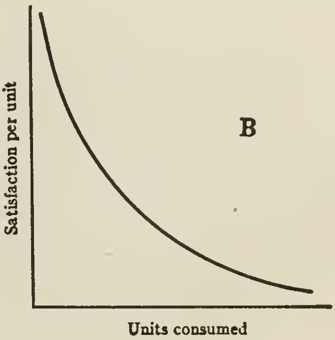
"According, then, to the degree with which we are acquainted with external objects, and to the power that we possess of judging of their relations to ourselves and to other things, our capacity of desire will be extended. It therefore depends upon the education, in the widest sense of that term, of each individual, and upon his character as mainly resulting from that education, how many and what kinds of objects, and with what degree of persistency, he desires. The more complete the intellectual development, the wider will be the field of desire; and, by the usual reaction in our mental nature, the wider the field of desire, the stronger will be the inducements to intellectual effort for the continuance of means to gratify these desires.

"Nothing, therefore, can be further from the truth than the ascetic doctrine of the paucity and the brevity of human wants. So far from man wanting little here below, his wants are indefinite, and never cease to be so during his whole existence."

Certain very obvious and very important consequences flow from the above-described characteristic of human wants. Here, in large part, lie the motives to acquisition and to progress. Here in large part, is the *why* of the endless variety and increasing struggle of our modern industrial society.

2. *Provided no change occurs in the consumer and provided time for physical recuperation from stimuli is not permitted, any single want is capable of being sated. As added units of the desired good are consumed, a continual diminution of satisfaction per unit occurs. Sooner or later the point of satiety is reached.* Under the conditions here assumed the second unit of a good (say, an orange) gives less satisfaction than did the first; the third gives less satisfaction than did the second, and so on to, and even beyond, the point of zero-satisfaction. In many texts this fact is illustrated by some such diagram as that in figure A where the diminishing heights of the successive





rectangles, from left to right, are supposed to represent the diminishing amounts of satisfaction derived from successive units of some good. In figure B, the same proposition is illustrated by a "curve of descending utility,"[1] instead of separate rectangles.

Naturally, so far as we consciously distinguish the different intensities of different wants, we tend to satisfy our most pressing wants first and, equally naturally, we tend to apply our expenditures to all our wants in such a way as to secure equal marginal utility, so-called, from each. That is, we try to continue our consumption of no commodity so far that the last unit consumed affords less satisfaction than might have been secured by an equal expenditure for some other commodity. Here again an illustration serves us to good advantage. In the following table the Roman numerals I–VI denote six different commodities, in the order of their importance to a given consumer. The Arabic numerals indicate the intensity of satisfaction to be derived from the consumption of the first, second, third, or subsequent unit of each specified commodity.

	COMMODITY					
	I	II	III	IV	V	VI
Satisfaction derived from 1st unit consumed	10	9	8	7	6	5
" " " 2d " "	9	8	7	6	5	4
" " " 3d " "	8	7	6	5	4	3
" " " 4th " "	7	6	5	4	3	2
" " " 5th " "	6	5	4	3	2	1
" " " 6th " "	5	4	3	2	1	0
" " " 7th " "	4	3	2	1	0	...
" " " 8th " "	3	2	1	0	...	...
" " " 9th " "	2	1	0	...	...	...
" " " 10th " "	1	0	...	...	...	...
" " " 11th " "	0	...	...	...	...	...

Assume, now, that the same expenditure is necessary to secure any one unit of any commodity. If, then, a person is in a position to secure only a single unit, he will, under the stated conditions, presumably take a unit of commodity I and derive a satisfaction of 10. However, if two units may be had, two units of I or one unit each of I and II offer equal satisfaction. A person choosing three units would select two units of I and one of II. The fourth unit to be chosen might be, indifferently, a third unit of I, a second unit of II, or a unit of III—and so on.

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[1] The term utility has here its conventional economic sense of *capacity to satisfy want.*

We must not permit the table to mislead us, however. It is a dangerous illustration in two or three particulars. If carried out to want X or XI it would seem to imply that the sum total of human wants could be sated, and this we know to be impossible. Again, if these figures were charted, the curve of descending utility would come down at the same angle for all wants. This is of course not the case in actual life. The curve of utility obviously descends more rapidly in the case of cook-stoves than in the case of slices of bread. Another way of stating this is to say that desire is more elastic in the case of slices of bread than in the case of cook-stoves. Finally, we must not suppose that anyone can really measure satisfactions in any such definite way as is here assumed in using the Arabic numerals. It must be kept in mind that an illustration is not a demonstration, and that a table or chart used to illustrate one feature of a subject may be a faulty illustration of another feature.

What consequences flow from the above statements? A few of the consequences are here listed and the student is asked to show *how* and *why* these consequences do flow.

a) With an increased output of a given good its price tends to fall, other things remaining the same.

b) If the output of several goods should be increased at the same rate the prices might fall at different rates.

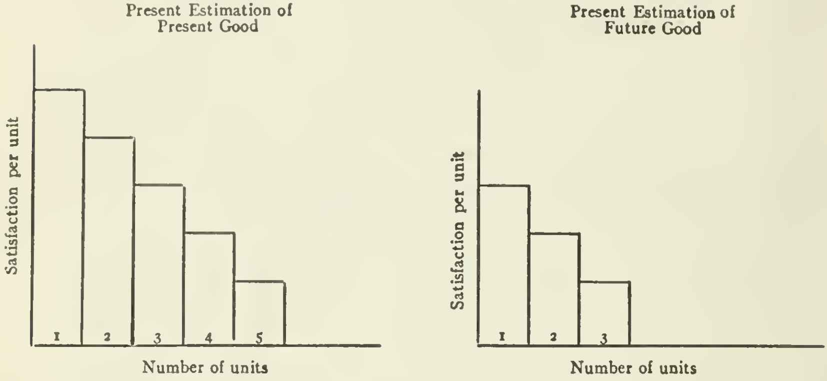
c) Diversity or variety of expenditure occurs.

d) In part, here is an explanation of how it happens that a certain amount of social energy is devoted to the production of good x and a certain other amount to the production of good y. In other words, here is part of the explanation of the distribution of land, labor, and capital among the various activities of society.

3. *The present estimation of the utility of a future good is less than the present estimation of the utility of a present good, assuming no change in either quantity or quality of the good.* If you were asked whether you preferred to have a unit of x today or three years hence, under the conditions above assumed, your decision would be to receive it today. There are uncertainties in life; you might not live the three years; your wants might change; three years hence is a "long time off." Of course, if x is a bottle of grape juice, it might be preferred three years hence as wine, but in that case a change in quality has occurred. Equally, of course, if x is now plentiful and you have

reason to know that x will be scarce three years hence, you might vote to defer present consumption, but in that case a change in quantity has occurred.

The proposition here before us has been illustrated by the following diagram:



If this proposition be true, should we have reason to expect that society might have occasion to induce some of its members to save by paying them interest on their savings?

4. *Our wants are often imposed upon us by the force of imitation and by social standards. The gregarious instinct is powerful. We move in herds.* We buy hats and clothing at Easter. We buy extensively at Christmas. Teddy bears become the rage and as suddenly are supplanted by some new fad. The tulip craze affects the industry of a whole country. And so examples without limit may be heaped up.

The economist, however, is mainly interested in the economic consequences of these characteristics of our wants. Some of the consequences of this particular characteristic may be stated as follows:

a) An explanation of the magnitude of some of our industrial phenomena.

b) Great social saving through the economies of large scale production.

c) Great social waste of machinery, goods, and established industrial and commercial connections when a shifting of taste occurs.

d) A partial explanation of such phenomena as rush work, sweated industries, and overcrowding.

e) A partial explanation of the growth of cities.

5. *Our subjective estimate of satisfactions is continually shifting.* I may have in mind such a table of satisfactions as was used under 2, above, and a word from you, an advertisement read, a look at a show window, or any one of a thousand other things, trivial or important, may change the table. With the lapse of time the case is even more striking. We change as a result of every factor of our environment, by education, by travel, by association, even by the very process of consuming goods.

Since industry caters to wants, it follows that there will be a continual shifting in industry and that a person engaged in supplying the means of satisfaction of these wants will assume risks and chances quite independent of the risks of climate, fire, or accident. It need not surprise us to find that men must be rewarded to induce them to incur these risks.

In all the above, little was said concerning the *why* of wants. This is a problem for the psychologist rather than the economist. It is referred to at this point merely to emphasize the fact that the economist is making no arbitrary assumptions in this matter. Wants may be and are the results of instincts, reason, suggestion, habits, and a thousand other things. Be all that as it may, the significant thing for the economist is that the motivation of economic actions is to be found in wants. The purpose of this survey is solely to cause the student of economics to feel that the curtain has been pulled aside and that a view has been given of some of the real forces actuating industrial society.

7. THE APPORTIONMENT OF EXPENDITURES[1]

Dr. Ernst Engel, in 1857, compared the budgets in Le Play's famous "Family Monographs," added data of his own, and formulated his schedule of the normal distribution of expenditures in their relation to income.

From Table 1 (p. 28) Engel deduced four famous laws:

1. The larger the income of a family, the smaller is the percentage of it expended for food.

2. The percentage of expenditure for clothing remains approximately the same for the larger incomes as for the smaller.

3. With all the incomes investigated, the percentage of expenditure for rent, fuel, and light remains invariably the same.

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[1] Adapted from F. H. Streightoff, *The Standard of Living among the Industrial People of America*, pp. 12–23. Houghton Mifflin Co., 1911.

TABLE I

ENGEL'S TABLE OF PROPORTIONATE EXPENDITURES

The figures show for families with the stated incomes what percentage of total expenditure goes for each of the specified purposes.

OBJECT	FAMILY INCOME					
	$225–$300		$450–$600		$750–$1,000	
Subsistence	62	95	55	90	50	85
Clothing	16		18		18	
Lodging	12		12		12	
Firing and lighting	5		5		5	
Education, religion, etc.	2	5	3.5	10	5.5	15
Legal protection	1		2		3	
Care of health	1		2		3	
Comfort, recreation	1		2.5		3.5	

4. The larger the income, the larger is the percentage expended for education, health, recreation, amusement, etc.

The brilliant work of this German statistician was confirmed in the main by the early work in America. The Massachusetts Labor Report for 1885, for instance, contained the schedule embodied in Table II.

TABLE II

EXPENDITURES IN WORKINGMEN'S FAMILIES IN MASSACHUSETTS, 1885*

The figures show for families with the stated incomes what percentage of total expenditure goes for each of the specified purposes.

OBJECT	FAMILY INCOME									
	$300 to $450		$450 to $600		$600 to $750		$750 to $1,200		Above $1,200	
Subsistence	64	97	63	95	60	94	56	94	51	90
Clothing	7		10.5		14		15		19	
Rent	20		15.5		14		17		15	
Fuel	6		6		6		6		5	
Sundries	3		5		6		6		10	

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* *Sixteenth Report of the Bureau of Statistics of Labor*, Massachusetts (1885), p. 152.

It will be noticed that in 1885, in America, a larger share of income was absorbed by the subsistence wants, less being left for sundries—education, health, recreation, and amusements. Two other facts, however, are particularly significant: whereas the Belgian or German outlay for lodging remained constant at 12 per cent as the income increased, American rents fell from 20 per cent to 15 per cent of the expenditure; second, as they became more prosperous, Americans enlarged their relative expenditure for clothing. This might have indicated extraordinarily high rents in Massachusetts, or very great lack of good clothing in the lower income groups, or both. The condition in 1901, however, was much more favorable to the Massachusetts working people, as the proportion of expenditure devoted to existence wants had fallen in every income group from 2 to 6 points, the gain being largely in reduced food costs. Still the expenses for clothing increased with the income, but not so excessively as in 1885; rents were still inordinately high, and the relative cost of lighting had begun to fall as income grew. (See Table III.) The Americans were by that time more liberal in their expenditures for health and insurance than were the Germans.

TABLE III

EXPENDITURES IN WORKINGMEN'S FAMILIES IN MASSACHUSETTS, 1901[*]

The figures show for families with the stated incomes what percentage of total expenditure goes for each of the specified purposes.

OBJECT	FAMILY INCOME				
	Less than $450	$450 to $600	$600 to $750	$750 to 1,200	Above $1,200
Subsistence	56.	54.89	53.30	53.18	54.87
Rent	21.96	17.54	17.27	11.03	6.80
Clothing	9.15	11.69	11.68	14.66	14.62
Fuel and lighting	7.91	6.91	6.75	5.39	4.49
	95.02	91.03	89.00	84.26	80.78
Education, church, etc.	1.61	2.92	3.99	4.12	4.58
Health, insurance	2.98	4.69	3.98	5.06	6.39
Sundries	.39	1.36	3.03	6.56	8.25
	4.98	8.97	11.00	15.74	19.22
Total aver. expenditure	$382.49	$555.53	$688.87	$886.50	$1,252.59

[*] *Thirty-second Report of the Bureau of Statistics of Labor*, Massachusetts (1901), pp. 296–97.

Charts I,[1] II,[2] and III[3] form an epitome of the subject of budgets as presented in the three studies mentioned in the note. It is interesting to observe that in no case does the expenditure for food reach 51 per cent: in other words, American workingmen now find food a much less pressing claimant of their resources than did Engel's subjects, or even the people of Massachusetts, in 1885. Another interesting fact is that after the income of $600 is reached, the relative expensiveness of food wants diminishes rapidly in the United States as a whole, though in New York City there is little gain in that respect,

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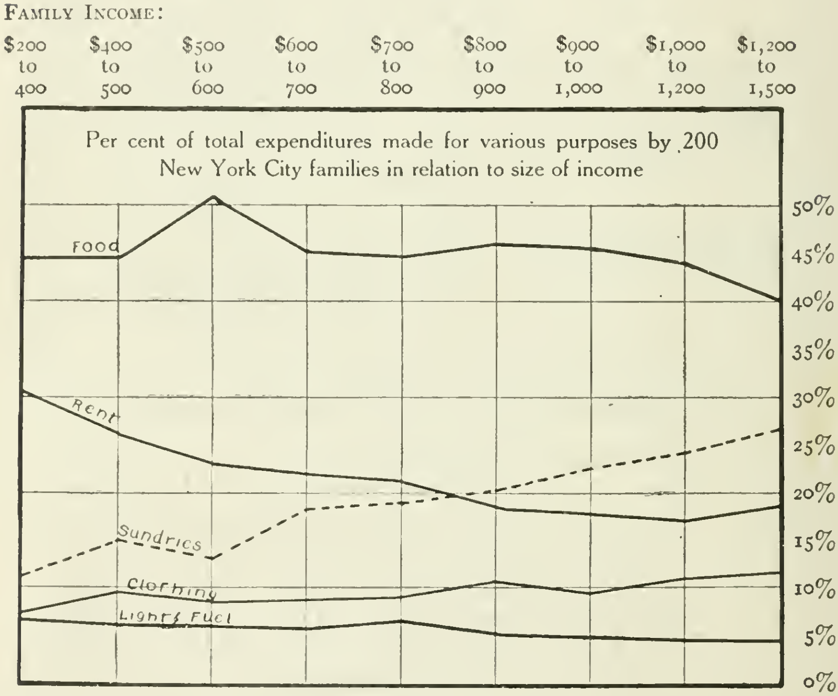
[1] Plotted from data on p. 55 of Mrs. L. B. More's *Wage-Earner's Budgets*.

[2] Plotted from data on p. 70 of R. C. Chapin's *The Standard of Living in New York City*.

[3] Plotted from data on p. 101 or 585 of the *Eighteenth Annual Report of the United States Commissioner of Labor*.

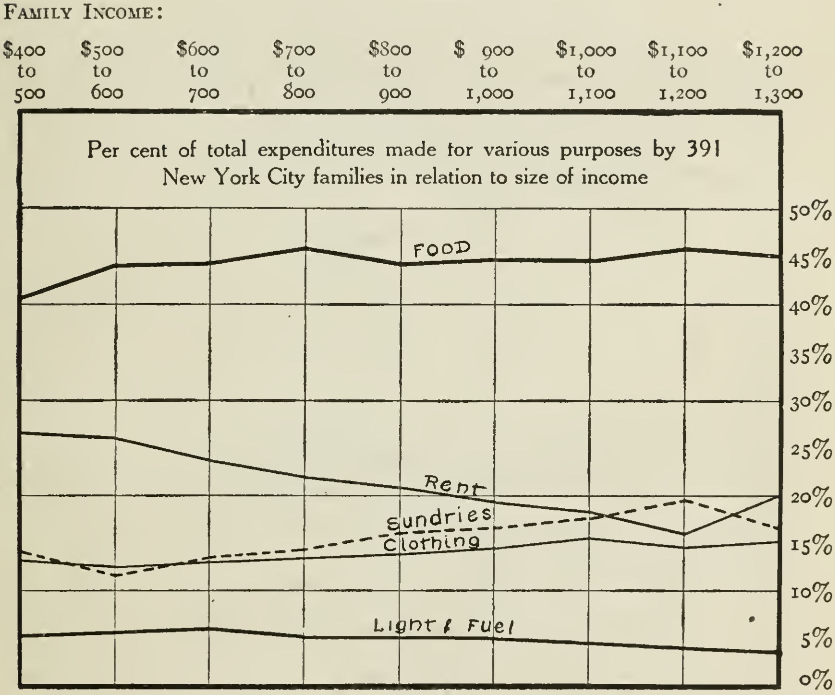
CHART I



food there absorbing proportionately less of the low incomes and more of the high ones. Again, there is something sinister in the enormous excess of rent paid in New York City, especially by families of small resources. Whereas the average outlay for rent in the income group $400–$500 in the city is $120 or $125, that in the country as a whole is $86.54. Dr. Chapin explains this phenomenon on the ground that exorbitantly high rents in the metropolis force people who live there to consider shelter almost their prime want. It is a peculiarity of

New York City that, as their incomes grow larger, most families instead of seeking better quarters have to be content with a minimum of improvement in their houses, and are constrained to devote their additional resources largely to the purchase of food. It may be interesting to note that at the recent Berlin City Plan Exhibit it appeared that many families in the 1200–1500 marks income group in Schöneberg paid about one half their money for rent, and that the percentage expenditure for housing falls off in the higher *and* lower groups.

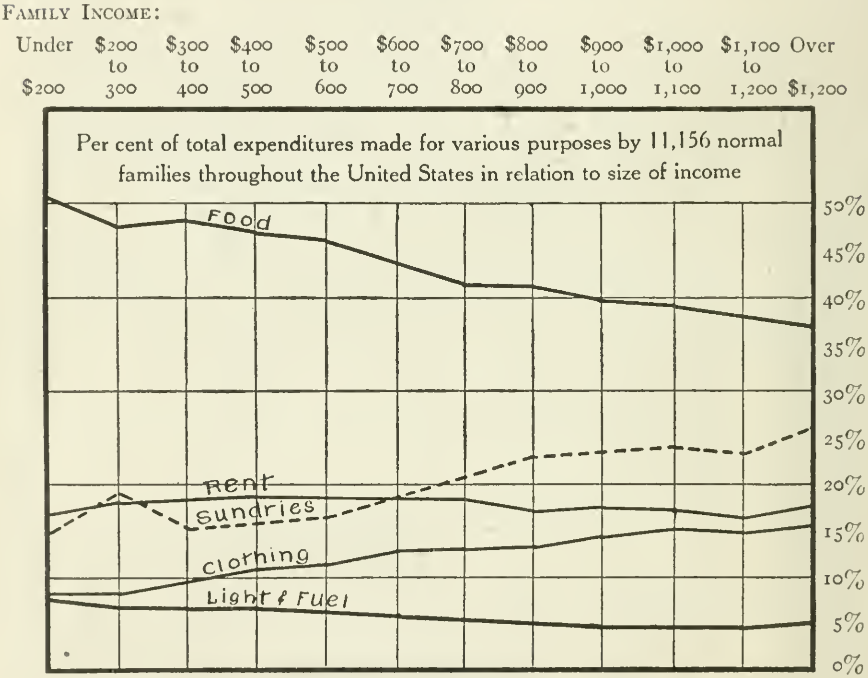
CHART II



In general, as prosperity grows, clothing is awarded a constantly increasing proportion of income, though among the more well-to-do families, especially among those whose accounts were recorded in Dr. Chapin's tables, there is a slight decrease in the per cent of outlay for raiment. When a man is very poor, his first necessities are food and a safe place in which to sleep. After both of these wants have been supplied, he can devote his efforts to satisfying other desires. His hunger he can conceal; he can escape temporarily from squalid home surroundings; but he cannot so easily rid himself of his rags—the badges of his poverty. So pride prompts him to secure better clothes as soon as his resources will permit him to do so. Fuel and lighting expenses slowly decline, and outlay for sundries rapidly rises in importance as incomes become more ample.

Engel's laws, then, need considerable modification before they can be applied to American workingmen of the present time. On the basis of the special investigations here cited they may be tentatively restated thus:

CHART III



Per cent of total expenditures made for various purposes by 11,156 normal families throughout the United States in relation to size of income

As the income increases:

1. The proportionate expenditure for food
   a) decreases for the country at large from 50 per cent to 37 per cent, but
   b) in New York City, it amounts to almost 45 per cent of the total outlay until an income of $1,000 is attained.
2. There is a strong tendency for the percentage of expenditure for clothing to increase.

3. Relative expenditures for housing
    a) remain about constant for the country at large, falling very slightly after $400 incomes have been reached, but
    b) decrease rapidly from 30 per cent, or more, to 16 per cent in New York City.
4. Proportionate expenditures for fuel and light decrease.
5. Expenditure for culture wants increases absolutely and relatively.

8. THE STANDARD OF LIVING[1]

Satisfactorily to define the standard of living is extremely difficult. Professor Charles J. Bullock, for instance, writes: "Each class of people in any society is accustomed to enjoy a greater or less amount of the comforts or luxuries of life. The amount of comforts or luxuries customarily enjoyed by any class of men forms the 'standard of living' of that class." That is to say, the standard of living, as the expression is usually understood, consists simply of what men actually do enjoy. On the other hand, there always are felt but unsated wants that prompt men to struggle for higher wages; these reasonable unfilled desires are the motive power of progress. Few indeed are the women who do not confidentially whisper to their friends: "We cannot do that now, for we are rather poor this year." An inborn spirit of emulation prompts each to envy the pleasures of his more fortunate neighbor; thus there is an "ideal" standard of living which is always in advance of achieved satisfaction.

Professor Bullock's definition is particularly valuable in suggesting two important truths. First, it properly emphasizes comforts and luxuries. "If we are to judge by his expenditure, the workingman may graduate his wants thus: bread and meal, house, liquor, tea, tobacco, clothes, meat." The fact is that in everyday affairs effort is often directed more to securing superfluities than to providing necessities: for example, it is said on good authority that a large percentage of recent real estate mortgages in New York have been given that the owners of the property might purchase automobiles. In the second place, the extent and content of the unsated wants in a man's ideal standard is largely determined by actual satisfactions. This truth is emphasized by Mr. Frank Tucker when he says: "A standard of living is a measurement of life expressed in a daily routine which is determined by income and conditions under which it is earned, economic and social environment, and the capacity for distributing the income."

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[1] From F. H. Streightoff, *The Standard of Living among the Industrial People of America*, pp. 2–8. Houghton Mifflin Co., 1911.

Having noted these fundamental principles, it is possible to take another step. Each individual has his own more or less rational concept of what is essential to the maintenance of his own social position; and he knows exactly what this position is, whether he be the bank clerk who delights in horse-races, or the man who shares the same desk and plays on his Sunday-school ball team. The one demands "smart" raiment and amusement at high nervous tension, the other wants respectable, serviceable clothes and healthy sport. They live in different worlds, they have individual criteria: so each man has his own standard of living. But it will be noted that the bank clerks as a class have some wants in common in contrast to the mechanics, for instance. The clerks must enter their offices clean-shaven, the mechanics like a good scrub after work; the former wear kid gloves and fresh linen, the latter are more comfortable in woolen gloves and flannel shirts. These contrasts and comparisons can be extended until the standards of each group have been determined with considerable precision. Thus the class standard of living may be compared to a composite photograph; certain features are emphasized, while others are faint or blurred according to the proportion of individuals possessing the character—or feeling the want. On the other hand, development of the individual is so largely influenced by his environment that his notions are, in the main, those of his class. So the class standard of living is the product of the ideals and resources of its members, and, in turn, modifies their criteria.

But class is not the only factor within the community in the development of the individual's ideal standard of living. Aside from its large determining influence in the matter of class membership, income has an important part to play; purchasing power limits the quality and quantity of obtainable satisfactions. As little Tommy wants to be like Big Brother, and Big Brother envies the prowess of the butcher-boy, so the smelting hand feels the desires—not of the president of the Steel Trust—but, say, of his foreman, the nearest person whom he sees enjoying just a little more distinction, just a little more material wealth than he. So the individual's ideal is limited by his income; the higher he climbs on the ladder of success, the wider is his view; the more he sees, the more he seeks.

Another determinant of the standard of living is the progress of civilization. Professor John G. Brooks quotes a Cape Cod captain as follows: "My father wanted fifteen things. He didn't get 'em all. He got ten and worried considerable because he didn't get the other five. Now I want forty things, and I get thirty, but I worry more about the ten that I cannot get than the ole man used to about the five he couldn't get." The modern carpenter has far more comfort than Richard II dreamed of, simply because progress has put new things within his reach—created new utilities and new wants—but the carpenter knows that there are many, many things that he cannot have. Thus there is a constant, though irregular, rise of the standard of living as civilization becomes more complex. The standard, then, is a result of two forces, environment, comprising time, income, and class, and individuality.

It will not do, however, to leave the problem at this point. As the standard determines the manner of living, it is important to distinguish between worthy and unworthy, or high and low standards. It may reasonably be doubted whether the standards of the very rich are ideally any higher than those of industrial workers. A dinner given by one of the exclusive four hundred with a monkey as the guest of honor is no more justifiable than the practice of the "wash-lady" who displays the gold fillings in her false teeth. Both are useless, if not positively harmful; they are evidence of low or unworthy ideals. A normal standard of living, on the other hand, is one which conduces to healthy symmetrical development, physical, mental, and moral. The standard is properly counted ideally high in proportion as it achieves this end, and especially as its emphasis falls upon the intellectual and moral elements.

What, then, is the content of the lowest tolerable standard of living? In the first place, there must be food, clothing, and shelter sufficient to maintain economic efficiency. Even those persons who believe that the sole end of existence is production must grant this proposition, at least in its general application. Under shelter is included light, fuel, and necessary furniture. If economic efficiency is to be preserved, there must be provision against sickness and unemployment; for, unless his strength is maintained during idleness, when he returns to work the individual is unfit for his stint. Moreover, the man's standard must include a family, else, in a generation, production will cease.

But this view of the purpose of man is far too narrow. Few people would today have the hardihood to deny that man's life should contain the largest possible amounts of wholesome pleasure. "One of the strongest human wants is the desire for the society of one's fellows." This means that with a normal standard of living the house should contain a room fit for entertainment of company, that the family should have clothes which will enable them to appear in public without shame, and that the routine should include some leisure for polite intercourse. Still if man is to be an end in himself he must have more than this; he needs some education, books, pictures, and wholesome recreation; he must have time for the home life that Colonel Roosevelt calls "the highest and finest product of our civilization." A little boy once defined home as "the place where mother is." From the viewpoint of the child's welfare, this youngster undoubtedly hit upon the significant fact. Modern scientific charity as well as the Christian religion recognizes a very real social value in the home. It is probably this which is in the mind of Professor John A. Ryan when he writes that the wife should not be a wage-earner, thus implying that the father should support the family. Beside all these things, a normal standard of living contains provision for all emergencies, sickness, accident, unemployment, and death, and for material advance—savings: religion, too, should be in the routine. So the ideal standard of living demands the satisfaction of reasonable wants of both body and intellect, and includes an ambition to improve.

A clear understanding of what the standard of living is permits some appreciation of its significance. In the first place, unless the standard includes adequate food, clothing, and shelter, health will inevitably suffer and the race will degenerate physically. If, on the contrary, men obtain a proper satisfaction of these fundamental wants, not only will health be preserved and improved, but a foundation will be laid for intellectual progress. A step farther may be taken along this line: unless they believe that their descendants will be able to maintain the parental standard, men will, if thoughtful, refuse to become fathers. Again, if women would rather dress showily than enjoy homes of their own, married or unmarried, they will refuse to assume the burden of motherhood. Thus, in two distinct ways, the standard of living tends to determine population. By this limiting of propagation, the standard of living limits the number of wage-workers, and so, if high enough, it can change the ratio of supply to demand for labor and thus raise compensation. In a much more simple and direct way, however, the desire for a higher standard of living decides the minimum pay demanded by trades unions and operates to increase earnings. More satisfactions will breed new wants, yet higher wages will be sought, and so the process will continue. In this way the "ideal" standard of living is the key to the material progress of the industrial classes.

Moreover, "in most cases increased wages have meant the gratification of the intellectual and artistic sense of the workers; have meant books and pictures; have meant a few extra rooms in the house and more decent surroundings generally; have meant a few years extra schooling for the children; have meant, finally, a general uplifting of the whole working-class." "The encouraging part of the whole matter is this, that among the poor there is everywhere the intensity of purpose that causes them to give up material things, food and raiment, and go hungry and shabby, in order to secure the spiritual things, amusement, education, and social relationship." The pursuit of a higher standard of living is, then, the inspiration of intellectual advance; upon it depends the physical and mental and moral welfare of the people, the development of the commonwealth. Two things, therefore, are essential to the progress of a nation: first, that the individuals receive so much material wealth as will enable them to satisfy their reasonable wants, and, second, that they continually discover new and wholesome desires.

9. A NORMAL STANDARD OF LIVING[1]

Writers on social questions have occasionally assumed certain round sums as the cost of maintaining a normal standard of living. For instance, Edward T. Devine, in *Principles of Relief*, 1904, p. 35, says:

> Recognizing the tentative character of such an estimate, it may be worth while to record the opinion that in New York City, where rentals and provisions are perhaps more expensive than in any other large city, for an average family of five persons the minimum income on which it is practicable to remain self-supporting and maintain any approach to a decent standard of living is $600 a year.

Professor Albion W. Small, head of the department of sociology in the University of Chicago, is quoted as having said in a lecture:

> No man can live, bring up a family, and enjoy the ordinary human happiness on a wage of less than $1,000 a year.

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[1] Adapted from the *Report of the* [Massachusetts] *Commission on the Cost of Living* (1910), pp. 594–97.

John Mitchell, formerly vice-president of the American Federation of Labor, has said that the minimum wage that will maintain a workingman and his family according to the "American standard" is $600 a year.

None of these estimates gives us any of the details from which the generalization has been arrived at, and none, except that of Dr. Devine, gives unit and locality. It is evident that the minimum income necessary to maintain a normal standard of living will vary considerably in different places, because of the differences in living conditions, prices, wages, rents, social life, opportunities for recreation, etc. As conditions in the same locality are changing from year to year, it would also be necessary to revise such an estimate from time to time.

The New York State Conference of Charities and Correction undertook an investigation of the cost of a normal standard of living in New York City in 1907. This investigation was in great detail, and was based upon 318 budgets.

For the report 224 family budgets were selected from the 318 that were available. The income of these families ranged between $600 and $900. The average incomes and disbursements of the three groups are shown in the table.

AVERAGE INCOME AND EXPENDITURE*

Items of Expenditure	Group I, Income, $600–$699; Average, $650	Group II, Income, $700–$799; Average, $748	Group III, Income, $800–$899; Average, $846
Rent	$154	$161	$168
Carfare	11	10	16
Fuel and light	38	37	41
Furniture	6	8	7
Insurance	13	18	18
Food	279	314	341
Meals eaten away from home	11	22	18
Clothing	83	99	114
Health	14	14	22
Taxes, dues and contributions	8	9	11
Recreation and amusement	3	6	7
Education	5	5	7
Miscellaneous	25	32	41
Totals	$650	$735	$811

* Report of Special Committee on Standard of Living in New York City.

Group I. Income $600–$700.—Do the families with incomes from $600 to $700 maintain a standard of living sufficient to preserve physical and mental efficiency? The average family of five persons in this group pays $13 a month for rent, for which they are able to obtain in the Borough of Manhattan from 2 to 3 rooms. The rooms are apt to be low and comparatively small, and one room is usually dark. The food disbursement for such a family is approximately $270 a year for five individuals, or a 3.5 unit. This is $82 a year per unit, or 22½ cents per man a day. In reckoning the consumption of food, the proportionate amounts assigned to each person, as compared with the requirements, for an adult man are expressed by 1; adult woman, .8; children, .3 to .7, depending upon the age. The family clothes itself at a cost of $84 a year. It is difficult to determine whether a family of five can buy enough clothing for their needs on $84 a year. Families in this group often receive gifts of clothing from relatives, employers, and friends.

A family having an income of $650 a year spends 24 per cent of its income for rent, 45 per cent for food, or 85 per cent for four items, rent, food, clothing, fuel and light. Only 2.5 per cent is spent for education, recreation, and dues to societies; the other 12.5 per cent is for health, insurance, furniture, carfares, meals away from home, and miscellaneous. The family is unable to make any provision against accident, or to lay by anything for a rainy day. Twenty of the 72 families in this group admitted being in debt, thus showing how difficult it is to live within this income. The committee concluded that an income between $600 and $700 per annum was insufficient for a family of five to maintain a proper standard of living in the Borough of Manhattan. Leaving aside the exceptions, it is apparent that many families in this group have a fierce struggle for existence. The maximum of food bought approximates the minimum set up by authorities on this subject. No provision can be made for accidents or emergencies. If either of these occur, the family runs into debt. Were it not for the charity of friends, relatives, employers, or philanthropic organizations, the expenditures of the family would be larger than the income. Such a family literally lives a hand-to-mouth existence, with neither opportunity nor means for enjoyment or recreation. The health of its members cannot be safeguarded from its own resources. The housing accommodations barely prevent overcrowding. The committee states:

> It requires no citation of elaborate statistics to bring convincing proof that $600 to $700 is wholly inadequate to maintain a proper standard of living, and no self-respecting family should be asked or expected to live on such an income.

Group II. Income $700–$800.—The average expenditure for this group was $735—$85 more than in Group I—to be accounted for as follows: $45 more for food, $16 more for clothing, the balance of $24 fairly evenly distributed among the other items of the budgets. All of the 79 families in this group lived within their incomes. The housing conditions remain practically the same. In the food budget the $45 additional permits of more animal food and a better quality. The per capita per day is increased to 25 cents. All in all there is a tendency toward improvement in condition, and were it not that housing conditions have not improved, it might be assumed that the family is beginning to reach a point where a fairly decent standard of living is to be maintained. The committee finds:

> The committee believes that with an income of between $700 and $800 a family can barely support itself, provided that it is subject to no extraordinary expenditures by reason of sickness, death, or other untoward circumstances. Such a family can live without charitable assistance through exceptional management and in the absence of emergencies.

Group III. Income $800–$900.—The average expenditure for the families of this group is $811. The average income is $846. There is thus an average annual saving of $35 per family—in marked contrast with the experience of the groups with lower incomes. There is an increase of $76 in expenditures over Group II, of which 50 per cent goes for food and clothing, 10 per cent for rent, 15 per cent for miscellaneous, and 25 per cent for other items. The housing is better. There are more baths and particularly more toilets in the apartments. The rooms are larger, with more light. The amount that is now disbursed for food (27 cents a day) and for clothing appears to be adequate. The people have opportunities for recreation and for amusement that are fairly normal. The committee sums up:

> In view of all these facts, the committee is of opinion that it is fairly conservative in its estimate that $825 is sufficient for the average family of five individuals, comprising the father, mother, and three children under fourteen years of age, to maintain a fairly proper standard of living in the Borough of Manhattan.

It is interesting to observe that Mrs. More's study, based upon 200 families in New York City, reaches conclusions as to the minimum income necessary to maintain a normal standard of living which are very similar to the conclusions of the State Conference of Charities. She says (p. 269):

> This investigation has shown that a well-nourished family of five in a city neighborhood needed at least $6 a week for food. The average for 39 families having five in a family was $327.24 a year for food. If we consider $6 a week (or $312 a year) as 43.4 per cent of the total expenditures (which

was the average expended for food in these 200 families, and very near the average for the workingmen's families in the extensive investigation of the Department of Labor), the total expenditures would be about $720 a year. It therefore seems a conservative conclusion to draw from this study that a fair living wage for a workingman's family of average size in New York City should be at least $728 a year, or a steady income of $14 a week. Making allowance for a larger proportion of surplus than was found in these families, which is necessary in order to provide adequately for the future, the income should be somewhat larger than this—that is, from $800 to $900 a year.

10. A CLASSIFICATION OF THE MEANS OF SATISFYING WANTS[1]

Useful things or goods
- Free goods, not the objects of economic endeavor, hence non-economic goods
- Scarce goods, the objects of economic endeavor, hence economic goods or wealth[2]
  - Land and natural resources
  - Produced goods
    - Consumers' goods
      - Consumed by their owners
      - Loaned, rented, or hired by their owners for an income = Private or acquisitive capital
    - Producers' goods = Social or productive capital

Private or acquisitive capital and Social or productive capital } Capital

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[1] From T. N. Carver, *Principles of Rural Economics*, p. 203. Ginn & Co., 1911.

[2] Though, in an absolute sense, well-being depends upon free goods quite as much as upon scarce goods, yet in a relative and practical sense it does not. Where air, water, sunlight, etc., are abundant and free, our well-being is not improved by getting more of these things, and we cannot count ourselves as possessing more wealth when we increase our possession of them. But when they are scarce, our economic efforts are directed toward getting more of them, or substitutes for them. By such efforts our well-being is improved. Such things are therefore properly called wealth, because our well-being depends upon them in this relative, immediate, and practical sense. Here, as frequently happens elsewhere, the general common sense of mankind, which sanctions this use of the word "wealth," shows more wisdom than the hasty judgment of the partially trained thinker who rejects this usage and insists that wealth should include free goods as well.

11. TYPICAL CASES ILLUSTRATING THE EXISTENCE OF WEALTH BEHIND PROPERTY RIGHTS[1]

Name of Case[2]	Wealth on Which the Property Right Is Based	Services of That Wealth	Description of Property Right	Certificate of Ownership, If Any
Fee simple..........	Farm	Yielding crops	Right to use it exclusively forever	Deed
Partnership.........	Dry goods	Yielding profits from sales	One partner's "undivided one-third interest" Other partner's "undivided two-thirds interest"	Articles of agreement
Joint stock..........	Railway	Yielding profits	The shares of stock	Stock certificate
Different usufructs...	Ranch	Yielding products	Right of farming Right of lumbering Right of fishing Right of mining	Written contracts
Street franchise.....	Street	Use of same for passage, etc.	Right to run cars through it Right to run wires through it	Charter
Lease or hire........	Dwelling	Use of same for shelter, etc.	Right of tenant till fixed date Right of landlord thereafter	Lease
Lease or hire........	Horse and buggy	Driving	Right of customer to an afternoon drive Residual rights of liveryman	None
Lease or hire........	Theater	Use of same for amusement	Right to opera box for season	Receipt
Railway ticket.......	Railway	Transportation	Right to specified trip	Ticket
Work dues...........	Workman	His work	Right of employer to performance of same	Written contract
Railroad bond.......	Railway	Payment of "interest" and "principal"	Right to same and contingent right to foreclose	Bond certificate
Personal note........	All the possessions of the signer	Payment	Right to same and in default thereof right to collateral security	Note
Bank note..........	Bank building, cash, and all wealth underlying bank property	Payment on demand	Right to same on demand	Note

Bank deposit........	Bank building, cash, and all wealth underlying bank property	Payment on demand	Right to same on demand	Pass book
Promises of refraining.	Person and his (other) wealth	Leaving the field open	Right to same	Articles of agreement
Goodwill of newspaper	Subscribers, advertisers, and their (other) wealth	Resubscribing and re-advertising	Right of the "paper" to chance of their patronage	None
Irredeemable paper money............	General wealth of community	Any uses thereof	Right to portion of same	Paper money
Copyright...........	General wealth of community (persons included)	Leaving the field open	Right to compel same	Official record
Patent right.........	General wealth of community (persons included)	Leaving the field open	Right to compel same	Official record
Monopoly franchise...	General wealth of community (persons included)	Refraining from doing similar business	Right to compel same	Charter
Taxing power........	General wealth of community	Paying taxes	Right of government to collect	None
Rights in common....	Club building furniture and members	Use of same	Right to use of same	Certificate
Government property.	Streets, public parks, and buildings	Use of same	Right to walk over and otherwise use same	Official recorded plats, old grants, individual dedications, deeds

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[1] From Irving Fisher, *The Nature of Capital and Income*, pp. 26, 27. The Macmillan Co., 1906.

[2] [For Professor Fisher's classification of property rights, see Selection 13.—EDITORS.]

12. FORMS OF WEALTH[1]

- Wealth
  - Real Estate
    - Land
      - Productive land
        - Crop land, grazing land, timber land, mining land, hunting land, fisheries
      - Ways of transit
        - Railways, roadways, waterways, parks
      - Building land
    - Land improvements
      - Buildings
      - Improvements on highways
        - Overhead
        - Underground
        - Surfacing
        - Bridging
      - Minor
  - Commodities
    - Raw materials
      - Mineral
      - Agricultural
      - Manufactured
    - Finished products
      - Consumable
        - By being burned
        - By being eaten or drunk
        - By being otherwise used
      - Durable
        - Mechanical devices
        - Animals
        - "Hard money"
        - Clothing and jewelry
        - Furniture and works of art
        - Reading matter
        - Minor
  - Human Beings
    - Slaves
    - Free

13. FORMS OF PROPERTY RIGHTS[2]

- Property Rights
  - Complete (Fee Simple)
  - Partial
    - To services cut longitudinally
      - Rights in common
      - Rights to different usufructs
      - Partnership rights
      - Joint stock shares
    - To services cut transversely
      - Lease
      - Reversion
      - Patent and copyright
    - Rights to definite parts of services
      - Promises
        - Bonds
        - Private notes
        - Bank notes
        - Bank deposits
      - Orders
        - Checks, drafts, and bills of exchange
        - Irredeemable paper money
    - Minor and indefinite
      - Good will and custom
      - Taxing power

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[1] From Irving Fisher, *The Nature of Capital and Income*, p. 7. The Macmillan Company, 1906.

[2] Fisher, *op. cit.*, p. 37.

14. ESTIMATE OF WEALTH OF THE UNITED STATES, 1904[1]

Total	$107,104,192,410
Real property and improvements	$62,341,472,627
Live stock	4,073,791,736
Farm implements and machinery	844,989,863
Manufacturing machinery, tools, and implements	3,297,754,180
Gold and silver coin and bullion	1,998,603,303
Railroads and their equipment	11,244,752,000
Street railways	2,219,966,000
Telegraph systems	227,400,000
Telephone systems	585,840,000
Pullman and private cars	123,000,000
Shipping and canals	846,489,804
Privately owned water works	275,000,000
Privately owned electric light and power stations	562,851,105
All other	
Agricultural products	1,899,379,652
Manufactured products	7,409,291,668
Imported merchandise	495,543,685
Mining products	408,066,787
Clothing and personal adornment	2,500,000,000
Furniture, carriages, and kindred property	5,750,000,000

15. THE PRODUCTION OF ECONOMIC GOODS[2]

§ 1. Most men are related to the business world in two ways: as workers they are attached to some particular business engaged in producing some special sort of goods or services; as consumers they are attached to general industry by a great number of suckers. In seeking to understand the industrial system a man is thus furnished with two approaches: his narrow concentrated interest as producer, his broad diffused interest as consumer. He learns at both ends but his curiosity is more strongly and more constantly directed by what goes on in the little corner of the industrial world in which he earns his living, the business in which he is employed.

Turning his mind from the particular process on which he is mainly occupied, as a machine tender, a clerk, a laborer, a shop assistant, to what is taking place around him, he soon comes to get a grip of the main features of the structure of the business to which he "belongs."

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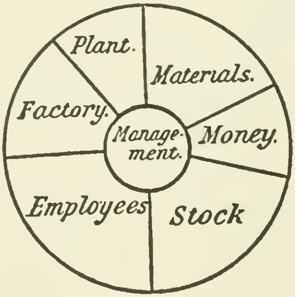
[1] From the Special Report of the United States Census Office, *Wealth, Debt, and Taxation* (1907), p. 27.

[2] From J. A. Hobson, *The Industrial System*, pp. 1–10. Longmans, Green & Co., 1909.

Here is an employee in a shoe factory: he sees around him a number of other wage-earners, most tending some machine, others clerks in the office; there is the factory itself and the premises it occupies, the machinery and fittings, the stock of leather and shoes in various stages of production; lastly comes the management, summarized in the employer or "boss."

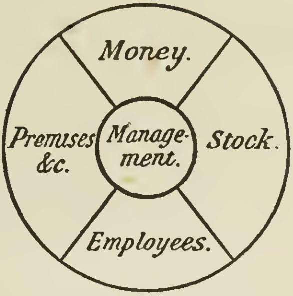
Such are the main ingredients of the business as he sees it encased in the four walls of the factory yard: in outline he comes to know how these ingredients are related, and he grasps the business as an organization under the direction of the manager.

If he tried to visualize the business in this broad outline it would take some such shape as this:



As soon as he came to realize the business as a whole, he would recognize that in the counting-house or the bank there was some money that belonged to the business.

A shop assistant or a mercantile clerk, who was not engaged in making goods but in collecting them, arranging and selling them, would find the general structure of his business similar, though the sort of work done and the instruments were different: plant would play a smaller part, there being very little machinery or tools; materials and stock would only be a different arrangement of the same goods, and would occupy a much more prominent place; as buying and selling seemed the soul of such businesses, money would bulk larger in his conception of the business.



A farm laborer would see his business as a different sort of composition: land, which formed a small element in the factory premises, and did not bulk very large even in the city warehouse or shop, would occupy a very prominent place in the farm; machinery might be a small factor, and the number of employees very few.

The bricklayer working for a firm of builders would, again, form a different idea of his business, which, except as regards a small yard and office, was not really contained in fixed premises, but consisted rather in a number of fluctuating contracts which affected him as "jobs." But though the material outlines of his business would be less fixed and less clearly defined, he would come to recognize that his employer was in control of a number of workers, business premises, a stock of building materials, and some machinery, as well as money to buy materials and pay wages.

To a keen observant worker the structure of the business in which he works would thus take shape, some of the necessary parts being clearer and better realized than others. The young business man, who enters the factory or the shop as a clerk, will see things from a somewhat different viewpoint from that of the manual worker; the employer's son, adopting from the first a managerial attitude, will more quickly get a more accurate outline of the working of the business as a whole. The worker, to whom the commercial or financial part of the factory or mine or warehouse is unexplored, often wrongly identifies his work-place as a complete business, whereas it is often only one branch or department of a larger business unit broken into a number of locally severed parts, each of which may seem to him an independent economic thing.

The intelligent observer, studying his own business from inside and others from outside, will soon see that the true size and limits of a single separate business can best be determined by watching the element of management. Is there practically independent management, and if so, what is the area of its control? is the important question to him. If the manager of a factory or shop receives his orders from outside, or in other important ways is instructed in the uses to which he puts his employees, his machinery, etc., and in the buying and selling essential to his business life, it becomes evident that such a factory or shop is not a complete business, but only part of some larger business.

When we examine the grouping of businesses in trades and markets, we shall see many ways in which the liberty of management in businesses that seem to the ordinary employee free is curtailed; not only in retail trade, but in manufacturing, mining, and other industrial processes, many businesses which look to the uninformed outsider free are tied by investments, contracts, mortgages, or other bonds of business life.

Here, as elsewhere, liberty is a matter of degree. But at present it must suffice to say that substantial independence of management constitutes a separate business; where the employer or manager has substantial liberty in buying and selling and arranging his factory or shop or warehouse as he thinks best, we call his a separate business.

We must, however, if we are to carry out our intention of including in our inquiry all processes of earning incomes or livelihoods, extend the use of the term "business" from the processes engaged in making and distributing material goods to those which make or distribute non-material goods that are bought and sold. So a lawyer's firm, a doctor's practice, an artist's studio, a "cure of souls," a writer's literary connection, or any other production and sale of skill or services which are under the control of a person or set of persons and form the basis of a livelihood, must be counted as a business.

The whole of the business world must be conceived as producing quantities of material or immaterial articles, the sale of which furnishes the livelihood of the community, and the active units in these processes—extractive, manufacturing, transport, trading, financial, professional, artistic, recreative, domestic, etc.—are businesses.

§ 2. Such businesses evidently differ from one another very widely, (*a*) in size, (*b*) in the relative importance of their constituent parts, and (*c*) in the ownership and control of the business.

a) As regards size, an investigation of the industrial world shows immense variety even within the same sorts of trade. In more primitive or backward countries very few large businesses exist in which a number of workers are brought together to work under a single management with large quantities of tools and materials. In such a country as China, or even Russia, the vast majority of businesses are confined to small workshops or home industry, where the manager works alone or with a few others, with simple tools and small stock of materials. Even in the most advanced industrial countries a large proportion of the businesses remain in this small size; the most highly developed industries in England or the United States still retain large quantities of home workers or other little business units.

In most departments of industry, even when great capitalist enterprise is prominent, great quantities of little simple businesses survive. The small peasant, working his plot of land with the labor of his own family, and living on the produce, still continues to exist in large numbers in most highly advanced nations: most of the world's food supply is still produced by these little independent farmers. Though large and expensively equipped factories have absorbed certain important branches of manufacture, and are constantly extending the reign of machinery over new fields of production, a very large proportion of the manufacturing arts still remains in small businesses, even in those textile and metal trades where large capitalism has established itself most strongly. Railroads, steamships, and carrying companies have not taken over all the transport industry; the small boatman, car-driver, and carrier still keep a hold on important branches of retail local traffic. In the building trades the big contractor leaves a lot of smaller or subsidiary work for little builders. Departmental stores and branch companies hold a large share of retail distribution, but they do not prevent immense quantities of small shopkeepers from earning a precarious but independent livelihood. Even in mining and finance, two departments of activity where capitalism is supreme, there still remains an area for the "placer" and the small jobber or money dealer. Regarding the professions from the standpoint of business structures, we perceive the individual or the small firm still in possession of the field, except in a few branches of the recreative, educational, and publishing arts.

Whenever we look in any part of the industrial system we see businesses set out in different sizes, ranging from the single worker, who molds some material into a useful shape by the strength of his own body and the use of some simple tool, to the huge impersonal joint-stock company employing millions of capital and thousands of employees in various parts of the habitable globe, and between these two extremes a vast variety of intermediate sizes.

b) Certain characters in the structure of a business correspond to differences of size. A small business is usually much simpler in structure; if it is engaged in handling materials to shape them into commodities, the element of labor usually bulks more largely than the others. Done usually in the home or workshops attached to the home, it has no need of specialized buildings; tools or machinery, though essential, do not represent a large expenditure; the power used in shaping or moving the materials is mostly got from the bodies of the workers, and not from coal or other non-human source. As a rule, such little businesses can be conducted with a very little store of cash.

As we ascend toward businesses of larger size, the relative importance of these factors shifts. Separate expensive buildings are usually required; the quantity of machinery and other plant grows so large that in many a modern mill, mine, railroad, or steamship several thousand pounds' worth of plant co-operates with each worker; fuel and the supply of power become enormously important items; the financial side of the business involves cash or credit, the use of money, as a large factor; while management, which in the small simple business was a merely incidental function of the independent worker, becomes a specialized separate department of supreme significance.

c) The most vital of all differences between the small primitive business unit and the large capitalist unit has reference to the ownership and control of the various factors composing the business.

The factors in a business, as we have seen, are land, buildings, machinery and tools, power, raw materials and stock, money, labor, and management. Every business which handles material goods requires some of each of these factors, though in widely different proportions. In the smallest simplest business form, where a workman works alone on his own account in his own house or work-place he commonly is himself the owner of all these factors. Such is the smallest peasant freeholder in many countries, working his own land with his own tools and cattle, sowing his own seed, and owning his house and sheds and the farm produce. The village smith or other small artisan, certain cabinet makers, and other little manufacturers in London, still represent this early type. Large numbers of little makers, e.g., tailors, cobblers, owning all the factors except the raw material, which they receive from their customers or from some merchant to whom they sell their product, everywhere survive. Here we may say that the worker is the owner of all, or nearly all, the factors including management. As we grade the various forms of business up from this to the most developed form of modern "capitalist" enterprise, we see one after another of the factors removed from the ownership and control of the worker and transferred to "management." In the complete capitalist business, land, machinery, and tools, power, raw materials and stock, money, labor-power are owned and controlled by the management, the single check upon absolute ownership being that the management does not own the laborers themselves (as it owns the coal that furnishes machine power) but only the portions of labor-power as they are released from the persons of the workers. In certain great businesses some other factor, as, for instance, electric power or the land on which business premises stand, may be similarly hired, not owned. But, speaking generally, the management in the highly developed capitalist business owns and controls all the other factors.

Between these two types a great number of intermediate types of businesses will be found. An immense variety of small farms, workshops, shops, and other commercial or professional businesses exist where the manager begins to separate from the workers, still working himself, but hiring other workers who have no part in management, though they may still own the tools with which they work, and even, as in many farms, fishing or mining businesses, some share of the stock and product.

In some sorts of business the manager or employer owns materials, which he gives out to workers to do in their own homes, or in workshops which they provide, either letting out to them machines or tools, or leaving the provision of machinery, sometimes also of power, to the workers. In agriculture and in the textile and metal manufactures of England today one finds every stage of the business form represented, from the simplest type of the self-sufficient single worker to that of the joint-stock company owning and controlling every factor in production.

In agriculture the small freeholder or yeoman, the tenant farmer, the market gardener, the allotment worker represent widely divergent types of ownership of land, fencing, tools, crops, etc.; fishing and mining are full of anomalies in ownership of tools, product, and management; the textile and clothing trades show every variety of business form, from the home workshop where the worker finds machinery, and, in part, raw materials, to the completely centralized factory; the metal trades exhibit in the higher form great engineering or steel-making firms owning everything they use, even coal and iron mines, trucks, and ships, but furnish a basis of survival not only for small Birmingham workshops working with hand-power on materials sometimes owned, sometimes provided for outside, but for Sheffield grinders receiving rough blades to be finished in their own workshops with hand-power, and small watchmakers in London or Coventry keeping up the earliest type of self-sufficing home workshop.

Or turning to retail trade, we find every variety still surviving in a large city; though perhaps few shopkeepers are owners of the land and shop premises, as regards stock, fittings, management, and labor, we see a gradation from the small independent shopkeeper owning his own stock and employing only his own family, to the great store which resembles the most highly evolved capitalist manufactures in every other feature except the part played by machinery and non-human power.

When from the numerous types of business unit represented in these agricultural, manufacturing, and commercial occupations one turns to finance, including great banking and insurance firms and small money-lending businesses, or to the professions, the fine arts, the recreative arts, and the countless businesses engaged in supplying "personal" services, from the Turkish bath and barber's saloon down to the individual domestic service of a household—when one takes stock of all these sizes and sorts of industry, the shapes of the business seem to defy classification. But omitting the delicate question whether certain occupations are entitled to be called separate businesses, and confining our attention to those which are commonly admitted so to rank, we find that while differing immensely in size, relative proportion of importance for several factors, and nature of ownership and control, they preserve certain common features.

In all businesses concerned with extracting, shaping, or moving matter we find the matter itself to which the work is applied, the machines or tools by which the matter is manipulated, the money required for buying what is needed, the buildings or premises where the material is stored, or the tools kept, or the work carried on, with the necessary fittings or fixtures, the land from which the matter is extracted or upon the surface of which work is done, the workers who do the work, and the employers or management. Even in businesses concerned with producing not material goods, but non-material services, such as professional advice, music, and other recreative services, etc., all these requisites, except in some cases raw materials, are needed, for the non-material services are produced under material conditions of space and shelter by workers who actually require tools or instruments and skilled direction or organization.

In developing our picture of industry, we may, however, legitimately confine our attention chiefly to those industries engaged in producing material commodities, with merely occasional references to the arts concerned with non-material services.

§ 3. For certain useful purposes of understanding how the mechanism of industry works, it will be convenient sometimes to gather together under a single class several of the factors or requisites of business which have here been separately described. So all the non-human factors in a business, except the land, may be grouped under the head of "capital," comprising buildings, machines and tools, fittings, fuel or power, materials, stock, money. Some would include land under capital, but, for reasons which will be given later, we shall find it best to distinguish the services directly rendered to production by earth, natural forces, and space, from those rendered by the other factors. Thus distinguishing land from capital, we may also distinguish the materials which it is the object of the business to extract, shape, or move, from those material factors which are instruments for these productive processes, and which are used up with more or less rapidity as they do this work. The first, which is a continual stream of matter flowing through the business and passing out of it to customers, may be called "circulating" capital; the factories and other buildings where the work is done, machines, tools, railways, ships, carts, etc., may be called "fixed" capital, standing as it does at some fixed point in the industrial stream to forward the passage of the raw material or unfinished goods toward their final destiny as commodities. Of course every other sort of capital is used up in its work of helping to shape or move raw materials into their final form or place, and this "wear and tear" may be considered as passing into the goods that are produced, and so as "circulating" in the industrial world. But it is altogether more convenient to mark out the material whose manipulation is the direct and express object of a business, from the materials which are only means toward this process.

Certain sorts of capital it has been found difficult to classify. Fuel, if regarded as merely instrumental to the operation of a machine, may be treated as "fixed"; but it is more conveniently regarded as a form of raw material worked into the main current in the form of power, and so classed as "circulating."

. . . .

Having thus designated the non-human factors of the business under land (or Nature) and capital (fixed or circulating), we come to the human factors spoken of as labor-power and management. As in the other cases, no absolutely rigid distinction can be made. We cannot confine labor-power to the manual or physical work in a business, reserving management for the mental guidance and organization. For all manual labor, regarded as production, contains mental and moral energy, nor is management devoid of all output of physical exertion. From the standpoint of physical and mental it would be possible to find a nice gradation in a complex modern business from the purely routine hand worker up to the general manager in his office, but nowhere could one find the point where mental exertion began or physical left off. Nor can we definitely divide them as employer and employees, though for some purposes this division will work well. For in most great modern businesses the manager is nominally, often really, an employee of the directors or the shareholders, and, so far as the practical arts of management are concerned, they are not confined to the manager, but largely delegated to sub-managers, overseers, inspectors, and other "officials."

Many, bearing these difficulties in mind, wish to lump all the human exertion, physical and mental, under the general name "labor." But there are practical reasons for rejecting this solution. The part played by the man or men who direct the course of a business, the interest they have in the business and the gain they receive from the business, are in most instances so different from the part played by the men who merely receive and follow orders, and their interest and gain, that it is desirable to treat the two as different factors of a business.

In most businesses "direction"[1] and "management" are not sufficiently distinct to warrant any further distinction. In our preliminary analyses of the business unit we shall therefore treat them as one, and regard both direction and management of the business as comprised for the most part in the manager or employer.

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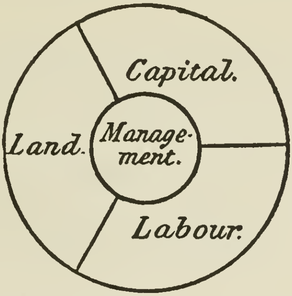
[1] In many "companies" the *personnel* and the interests, as well as the work of director and manager, are of course separated.



Adopting, then, the commonly accepted distinctions, we may bring our more numerous factors of a business under the four conventional heads, land, capital, labor, and management, thus simplifying our portrait of the business as the unit of industry.

16. A CLASSIFICATION OF INDUSTRIES[1]

The object of the analysis of industry given in this chapter has been to impress upon the reader the general outlines of the structure, taking for this purpose a rude classification of industrial processes. It may be well, following in the main the classification of Jevons,[2] to append the fuller analysis of industry which a scientific census of occupations would yield:

Proprietors of land and natural sources of supply: Landowners, Quarry Owners, Mine Proprietors, Owners of Fishing Rights (functions generally of a passive kind).

Producers of raw materials: Agriculturists, Gardeners, Woodmen, Shepherds, Herdsmen, Hunters, etc. Miners, Colliers, Fishermen.

Dealers in raw materials (*middlemen between producers and manufacturers*): e.g., Corn Merchants, Corn Agents, Corn Factors, Corn Chandlers, Cotton Importers, Cotton Merchants, Cotton Brokers, Cotton Agents, Cotton Salesmen.

Manufacturers (first order): e.g., Corn Miller, Cotton Spinner, Timber Sawyer, Iron Smelter.

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[1] From J. A. Hobson, *The Industrial System*, pp. 34–37. Longmans, Green & Co., 1909.

[For a discussion of the classification of industries with special reference to occupations, see "The Classification of Occupations," Selection 53.—EDITORS].

[2] *Principles of Economics*, pp. 108 ff.

Dealers (between two or more manufacturing processes): e.g., Flour Merchant (between Miller and Baker), Yarn Merchant (between Cotton Spinner and Manufacturer), Timber Merchant (between Sawyer and Carpenter, etc.).

Manufacturers (second order): Baker, Confectioner, Cotton Weaver, Dyer, Printer, Shirtmaker, etc. Cabinet Maker, Carpenter, etc. Rolling Mills, Engine Works, Cutlery, etc. (between any two processes a class or more of dealers may intervene).

Wholesale dealers in commodities: Warehousemen, Produce Merchants, Exporters, etc. (wholesale dealers in manufactured goods are often "general stores." In Foreign Trade, however, they specialize often (*a*) according to sea routes; (*b*) according to classes of manufacture, e.g., cotton goods, iron trade, etc.).

Retail dealers: Shopkeepers, Hawkers, Costermongers, Licensed Victuallers, etc. (often comprising a final act of manufacture, e.g., butcher, confectioner, dressmaker, etc.).

Transport (distributive industry according to Jevons): Carriers on Railways, Canals, Ships, Docks, Roads, Carriages, Horses (carrying raw materials from farm, mine, etc., to manufacture; carrying half-made goods between different orders of manufacture; carrying commodities between factories, wholesale dealers, retailers, and consumers).

Subsidiary trades ("Any which merely assist other trades by supplying the minor requisites"): e.g., Subsidiaries to Landowner: Estate Agent, Steward, Solicitors, Surveyors, etc. Subsidiaries to Farmers: Agricultural Implement Makers, Seed Merchants, Manure Merchants, etc. Subsidiaries to Corn Merchant: Granary Maker, Sack Maker, Corn-measure Maker, etc. Subsidiaries to Miller: Millwright, Machinist, Millstone Cutter, etc. Subsidiaries to Baker: Oven Builder, Peel Maker, Fuel Merchant, etc.

Finance: Banking, Insurance, etc.

This classification is based upon consideration of industrial processes, and marks the standpoint of the producer.

The consumer's standpoint would yield a transverse classification on the basis of the sorts of utility or satisfaction afforded by the commodities.

Taking the chief orders of utility, we should classify along the following lines:

Food: Bread Stuffs, Dairy Produce, Meat, Groceries, Beer, Wine, etc (or according to materials, wheat, sugar, milk, etc.).

Clothing: Over Wear (Suits, Dresses, etc.), Under Wear, Hats, Boots, Gloves, etc. (or according to material, Cotton, Wool, Flax, Silk, Leather, India-rubber, etc.).

Lodging: Dwelling-houses, Furniture, Crockery, etc. (according to materials—Wood, Stone, Steel, Brick, etc.).

Refinements: Ornaments, Amusements, Literature, etc.

Jevons, in suggesting the classification of occupations according to "commodity," based upon the four great classes, food, clothing, lodging, refinements, does not, however, as might have been expected, cleave to the consumer's standpoint (which I have here preferred), but divides his classes according to kinds of material used, not according to the "wants" satisfied.

A really scientific classification from the consumer's standpoint would be based upon a psycho-physical analysis of wants, beginning with food, shelter, clothing in their elementary uses as life-preservers, and proceeding to the higher and more specialized wants (conveniences, luxuries, etc.), as they arise in natural order from the satisfaction of the primary physical wants.

Industries and occupations would then be classified in relation to these needs or wants. The term refinements cannot even be regarded as containing the germ-idea of such a classification.

III. NATURAL RESOURCES AS ECONOMIC FACTORS

17. THE FUNCTION OF NATURAL AGENTS[1]

In this inquiry the earth as modifying human life includes the land surface down to the bottom of the deepest possible mine or artesian well or geological stratum; all the aqueous mass—that is, every drop of water in the seas and out of them, for there is no telling when any drop may enter the circle of human agencies and ownerships; the circumambient air, every gallon of that aerial ocean which swathes the world and vitalizes all living things, the common carrier of clouds and birds, of health and disease, of music and perfumes, of industry and commerce. As modifying human conduct, as subject of pre-emption and monopoly, not only the masses just mentioned are included, but motions and powers, even gravity, mechanical properties, physical forces, chemical activities, vital phenomena of plants and animals, that may be covered by patents and their uses become a matter of legislation and diplomacy.

The earth is the mother of all mankind. Out of her came they. Her traits, attributes, characteristics they have so thoroughly inherited and imbibed that, from any doctrinal point of view regarding the origin of the species, the earth may be said to have been created for men and men to have been created out of the earth. By her nurture and tuition they grow up and flourish, and folded in her bosom they sleep the sleep of death.

The human race is put into relation with all bodies through gravitation, with all mineral, vegetable, and animal substances through the laws of physics and chemistry; with the vegetal and the animal kingdom through the additional phenomena called life, and with all animals through mentation.

The earth is also a great warehouse of materials of infinite qualifications for gratifying human desires.

This is apparent enough to anyone who reflects about it, but few persons think of the long ages during which these substances were being compounded and compacted. These materials are the foundation of all technique and all styles of technique—textile, plastic, graphic, glyphic, tonic, and landscape. For them the earth not only furnishes the raw stuffs, but the apparatus and different motives to different races.

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[1] Adapted from Otis T. Mason, "Technogeography, or the Relation of the Earth to the Industries of Mankind," in the *American Anthropologist*, VII (1894), 138–58.

Before quitting the subject of the study of the earth as a warehouse the student ought not to overlook the varied characteristics of these resources. The qualities of things are the earth's, the grains and colors of the same stone, the elasticity and fibers of timber, the plasticity and temper of clays, the malleability and ductility of the same metals, and so on. So marked are these that in our higher civilization we must have iron from half a dozen countries to conduct one of our complex establishments. The very diversity of the same material from place to place has resulted in the production of the greatest possible variety of skill.

The earth is also the reservoir of all locomotion and power useful to man. Even the strength of his own limbs and back is derived from the food which she bestows. I do not speak of that, however, but of the substitutes therefor. She gives to the North American Indians the dog, to the South American the llama, to the people of the eastern continent the horse, ass, camel, elephant, and ox to convey them about and to carry or draw their loads.

The winds blow upon the sails and turn the mills, the waters set in motion the wheels and transport the freight. The steam is a still more versatile genius of power, and electricity just enters upon its mission. Coal, as a cheap source of energy, enables men to substitute for areas of raw material areas of manufacture and, indeed, to create areas of consumption.

The several kingdoms and forces of nature give rise to their several bodies of arts, each of which springs from the earth.

It would occupy too much space were I to elaborate in the most elementary manner the methods in which domestic animals, wind, fire, water, elasticity of solids, elasticity of gases, explosives, chemical action, magnetism, and electricity had enrolled themselves in the service of mankind merely to furnish power to do the work that in the simplest form is done by hand. Every one of them must have struck terror into the hearts of the first men. By being subdued they obeyed the principle of increasing their own usefulness and indispensableness by creating and complicating new wants.

The form of the globe, its coast lines, elevations and reliefs, the amount of sunshine, the properties and contents of the atmosphere, the varying temperatures, winds, rainfalls, and springs beneath the surface, the waterfalls in the surface also act as motives, if not as motive power to all apparatus and all the movements of men. We cannot eliminate the heavenly bodies from this enumeration, since they furnished clocks and almanacs and compasses to primitive peoples, and longer voyages were undertaken by their guidance in the Pacific than were made two centuries later in the Atlantic by Columbus with the aid of the mariner's compass.

Exploitation and cultivation, manufacture, transportation, exchange, consumption, as I have previously said, together constitute the round through which commodities are conducted in the progress of industries. The proposition is that the earth was in the beginning and is now the teacher of these activities. There were quarriers, miners, lumberers, gleaners, and, some say, planters; there were fishermen, fowlers, trappers, and hunters before there was a *genus homo*. There were also manufacturers in clay, in textiles, and in animal substances before there were potters, weavers, and furriers; there were all sorts of moving material and carrying passengers and engineering of the simplest sort. It might be presumption to hint that there existed a sort of barter, but the exchange of care and food for the honeyed secretions of the body going on between the ants and the aphidae look very much like it.

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In all this, the race has grown, not independent of the earth, but more dependent upon it. Artificial and domesticated supplies of material are as much from the earth as the wildest. Men in devising tools and machinery and engines to do the work of their hands have had to go to their mother for them. They use other forces than their own, but they are still forces furnished by the earth. They have multiplied invention upon invention, but every one of them is a device for using a great loan already in hand for the purpose of raising a larger one.

In this partnership between man and the earth the progress of culture has been from naturalism to artificialism; from exploitation to cultivation and domestication; from mere muscular power to more subtle physical force of man, of beast, of water, of air, of fire, of electricity; from tools to machinery; from simplest imitative processes to highly complex processes, involving many materials and motive powers and inventions; from short journeys to long journeys; from mere barter to world-embracing commerce; from monotonous and monorganic food and clothing, shelter and furniture, mental and social appliances to forms as complex and varied as the imagination can conceive. And when the supply gives out, it is not the earth that fails, but it is the comprehension and the skill of men.

18. THE INFLUENCE OF GEOGRAPHIC FACTORS[1]

In every problem of history there are two main factors, variously stated as heredity and environment, man and his geographic conditions, the internal forces of race and the external forces of habitat. Now the geographic element in the long history of human development has been operating strongly and operating persistently. Herein lies its importance. It is a stable force. It never sleeps. This natural environment, this physical basis of history, is for all intents and purposes immutable in comparison with the other factor in the problem—shifting, plastic, progressive, retrogressive man.

History tends to repeat itself largely owing to this steady, unchanging geographic element. If the ancient Roman consul in far-away Britain often assumed an independence of action and initiative unknown to the provincial governors of Gaul, and if centuries later Roman Catholicism in England maintained a similar independence toward the Holy See, both facts have their cause in the remoteness of Britain from the center of political or ecclesiastical power in Rome. If the independence of the Roman consul in Britain was duplicated later by the attitude of the Thirteen Colonies toward England, and again within the young republic by the headstrong self-reliance, impatient of government authority, which characterized the early trans-Allegheny commonwealths in their aggressive Indian policy, and led them to make war and conclude treaties for the cession of land like sovereign states; and if this attitude of independence in the over-mountain men reappeared in a spirit of political defection looking toward secession from the Union and a new combination with their British neighbor on the Great Lakes or the Spanish beyond the Mississippi, these are all the identical effects of geographical remoteness made yet more remote by barriers of mountain and sea.

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[1] Adapted from Ellen Churchill Semple, *Influences of Geographic Environment*, pp. 2–20. Henry Holt & Co., 1911.

As the surface of the earth presents obstacles, so it offers channels for the easy movement of humanity, grooves whose direction determines the destination of unknowing, unplanned migrations, and whose termini become, therefore, regions of historical importance. Along these nature-made highways history repeats itself. The maritime plain of Palestine has been an established route of commerce and war from the time of Sennacherib to Napoleon. The Danube valley has admitted to central Europe a long list of barbarian invaders, covering the period from Attila the Hun to the Turkish besiegers of Vienna in 1683. The history of the Danube valley has been one of warring throngs, of shifting political frontiers, and unassimilated races; but as the river is a great natural highway, every neighboring state wants to front upon it and strives to secure it as a boundary.

The movements of peoples constantly recur to these old grooves. The unmarked path of the voyageur's canoe, bringing out pelts from Lake Superior to the fur market at Montreal, is followed to-day by whaleback steamers with their cargoes of Manitoba wheat. Today the Mohawk depression through the northern Appalachians diverts some of Canada's trade from the Great Lakes to the Hudson, just as in the seventeenth century it enabled the Dutch at New Amsterdam and later the English at Albany to tap the fur trade of Canada's frozen forests. Formerly a line of stream and portage, it carries now the Erie Canal and New York Central Railroad. Similarly the narrow level belt of land extending from the mouth of the Hudson to the eastern elbow of the lower Delaware, defining the outer margin of the rough hill country of northern New Jersey and the inner margin of the smooth coastal plain, has been from savage days such a natural thoroughfare. Here ran the trail of the Lenni-Lenapi Indians; a little later the old Dutch road, between New Amsterdam and the Delaware trading-posts; yet later the King's Highway from New York to Philadelphia. In 1838 it became the route of the Delaware and Raritan Canal, and more recently of the Pennsylvania Railroad between New York and Philadelphia.

The great belt of deserts and steppes extending across the Old World gives us a vast territory of rare historical uniformity. From time immemorial they have borne and bred tribes of wandering herdsmen; they have sent out the invading hordes who, in successive waves of conquest, have overwhelmed the neighboring river lowlands of Eurasia and Africa. They have given birth in turn to Scythians, Indo-Aryans, Avars, Huns, Saracens, Tartars, and Turks, as to the

Tuareg tribes of the Sahara, the Sudanese, and Bantu folk of the African grasslands. But whether these various peoples have been Negroes, Hamites, Semites, Indo-Europeans, or Mongolians, they have always been pastoral nomads. The description given by Herodotus of the ancient Scythians is applicable in its main features to the Kirghis and Kalmuk who inhabit the Caspian plains today. The environment of this dry grassland operates now to produce the same mode of life and social organization as it did 2,400 years ago; stamps the cavalry tribes of Cossacks as it did the mounted Huns; energizes its sons by its dry bracing air, toughens them by its harsh conditions of life, organizes them into a mobilized army, always moving with its pastoral commissariat. Then when population presses too hard upon the meager sources of subsistence, when a summer drought burns the pastures and dries up the water-holes, it sends them forth on a mission of conquest, to seek abundance in the better watered lands of their agricultural neighbors.

Owing to the evolution of geographic relations, the physical environment favorable to one stage of development may be adverse to another, and *vice versa*. For instance, a small, isolated, and protected habitat, like that of Egypt, Phoenicia, Crete, and Greece, encourages the birth and precocious growth of civilization; but later it may cramp progress, and lend the stamp of arrested development to a people who were once the model for all their little world. Open and wind-swept Russia, lacking these small warm nurseries where Nature could cuddle her children, has bred upon its boundless plains a massive, untutored, homogeneous folk, fed upon the crumbs of culture that have fallen from the richer tables of Europe. But that item of area is a variable quantity in the equation. It changes its character at a higher state of cultural development. Consequently, when the Muscovite people, instructed by the example of western Europe, shall have grown up intellectually, economically, and politically to their big territory, its area will become a great national asset. Russia will come into its own, heir to a long-withheld inheritance. Many of its previous geographic disadvantages will vanish, like the diseases of childhood, while its massive size will dwarf many previous advantages of its European neighbors.

Let us consider the interplay of the forces of land and sea apparent in every country with a maritime location. In some cases a small, infertile, niggardly country conspires with a beckoning sea to drive its sons out upon the deep; in others a wide territory with a generous soil keeps its well-fed children at home and silences the call of the sea. In ancient Phoenicia and Greece, in Norway, Finland, New England, in savage Chile and Tierra del Fuego, and the Indian coast district of British Columbia, and southern Alaska, a long, broken shoreline, numerous harbors, outlying islands, abundant timber for the construction of ships, difficult communication by land, all tempted the inhabitants to a sea-faring life. While the sea drew, the land drove in the same direction. There a hilly or mountainous interior putting obstacles in the way of landward expansion, sterile slopes, a paucity of level, arable land, an excessive or deficient rainfall withholding from agriculture the rewards of tillage—some or all of these factors combined to compel the inhabitants to seek on the sea the livelihood denied by the land. Here both forces worked in the same direction.

In England conditions were much the same, and from the sixteenth century produced there a predominant maritime development which was due not solely to a long indented coastline and an exceptional location for participating in European and American trade. Its limited island area, its large extent of rugged hills and chalky soil fit only for pasturage, and the lack of a really generous natural endowment made it slow to answer the demands of a growing population, till the industrial development of the nineteenth century exploited its mineral wealth. So the English turned to the sea—to fish, to trade, to colonize. Holland's conditions made for the same development. She united advantages of coastline and position with a small infertile territory, consisting chiefly of water-soaked grazing lands. When at the zenith of her maritime development, a native authority estimated that the soil of Holland could not support more than one-eighth of her inhabitants. The meager products of the land had to be eked out by the harvest of the sea. Fish assumed an important place in the diet of the Dutch, and when a process of curing it was discovered, laid the foundation of Holland's export trade. A geographical location central to the Baltic and North Sea countries, and accessible to France and Portugal, combined with a position at the mouth of the great German rivers, made it absorb the carrying trade of northern Europe. Land and sea co-operated in its maritime development.

Often the forces of land and sea are directly opposed. If a country's geographic conditions are favorable to agriculture and offer room for growth of population, the land forces prevail, because man is primarily a terrestrial animal. Such a country illustrates what Chisholm, with Attic nicety of speech, calls "the influence of bread-power on history," as opposed to Mahan's sea-power. France, like England, had a long coastline, abundant harbors, and an excellent location for maritime supremacy and colonial expansion; but her larger area and greater amount of fertile soil put off the hour of a redundant population such as England suffered from, even in Henry VIII's time. Moreover, in consequence of steady continental expansion from the twelfth to the eighteenth century and a political unification which made its area more effective for the support of the people, the French of Richelieu's time, except those from certain districts, took to the sea, not by natural impulse as did the English and Dutch, but rather under the spur of government initiative. They therefore achieved far less in maritime trade and colonization. In ancient Palestine, a long stretch of coast, poorly equipped with harbors, but accessible to the rich Mediterranean trade, failed to offset the attractions of the gardens and orchards of the Jordan valley and the pastures of the Judean hills, or to overcome the land-born predilections and aptitudes of the desert-bred Jews. Similarly the river-fringed peninsulas of Virginia and Maryland, opening wide their doors to the incoming sea, were powerless, nevertheless, to draw the settlers away from the riotous productiveness of the wide tidewater plains. Here again the geographic force of the land outweighed that of the sea and became the dominant factor in directing the activities of the inhabitants.

Heinrich von Treitschke, in his recent *Politik*, imitates the direct inference of Buckle when he ascribes the absence of artistic and poetic development in Switzerland and the Alpine lands to the overwhelming aspect of nature there, its majestic sublimity which paralyzes the mind. He reinforces his position by the fact that, by contrast, the lower mountains and hill country of Swabia, Franconia, and Thuringia, where nature is gentler, stimulating, appealing, and not overpowering, have produced many poets and artists. The facts are incontestable. They appear in France in the geographical distribution of the awards made by the Paris *Salon* of 1896. Judging by these awards the rough highlands of Savoy, Alpine Provence, the massive eastern Pyrenees, and the Auvergne plateau, together with the barren peninsula, Brittany, are singularly lacking in artistic instinct, while art flourishes in all the river lowlands of France.

Moreover, French men of letters, by the distribution of their birthplaces, are essentially products of fluvial valleys, and plains, rarely of upland and mountain.

This contrast has been ascribed to a fundamental ethnic distinction between the Teutonic population of the lowlands and the Alpine or Celtic stock which survives in the protected isolation of highland and peninsula, thus making talent an attribute of race. But the Po valley of northern Italy, whose population contains a strong infusion of this supposedly stultifying Alpine blood, and the neighboring lowlands and hill country of Tuscany show an enormous preponderance of intellectual and artistic power over the highlands of the peninsula. Hence the same contrast appears among different races under like geographic conditions. Moreover, in France, other social phenomena, such as suicide, divorce, decreasing birth-rate, and radicalism in politics show this same startling parallelism of geographic distribution; and these cannot be attributed to the stimulating or depressing effect of natural scenery on the human mind.

Mountain regions discourage the budding of genius because they are areas of isolation, confinement, remote from the great currents of men and ideas that move along the river valleys. They are regions of much labor and little leisure, of poverty today and anxiety for the morrow, of toil-cramped hands and toil-dulled brains. In the fertile alluvial plains are wealth, leisure, contact with many minds, large urban centers where commodities and ideas are exchanged. The two contrasted environments produce directly certain economic and social results, which in turn become the causes of secondary intellectual and artistic effects. The low mountains of central Germany which von Treitschke cites as homes of poets and artists, owing to abundant and varied mineral wealth, are the seats of active industries and dense populations, while their low reliefs present no serious obstacle to the numerous highways across them. They, therefore, afford all conditions for culture.

19. THE FRONTIER IN AMERICAN HISTORY[1]

Behind institutions, behind constitutional forms and modifications lie the vital forces that call these organs into life and shape them to meet changing conditions. The peculiarity of American institutions is the fact that they have been compelled to adapt themselves to the changes of an expanding people—to the change involved in crossing a continent, in winning a wilderness, and in developing at each area of this progress out of the primitive economic and political conditions of the frontier into the complexity of city life. American development has exhibited not merely advance along a single line, but a return to primitive conditions on a continually advancing frontier line, and a new development for that area. American social development has been continually beginning over again on the frontier. This perennial rebirth, this fluidity of American life, this expansion westward with its new opportunities, its continuous touch with the simplicity of primitive society, furnish the forces dominating American character. The true point of view in the history of this nation is not the Atlantic coast: it is the great West. Even the slavery struggle, which is made so exclusive an object of attention by some historians, occupies its important place in American history because of its relation to westward expansion.

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[1] Adapted from F. J. Turner, *The Significance of the Frontier in American History*, in the *Fifth Year Book* of the National Herbart Society, and an earlier edition in American Historical Association, *Report*, 1893, pp. 199–227.

At first the frontier was the Atlantic coast. It was the frontier of Europe in a very real sense. Moving westward, the frontier became more and more American. As successive terminal moraines result from successive glaciations, so each frontier leaves its traces behind it, and when it becomes a settled area the region still partakes of its frontier characteristics. Thus the advance of the frontier has meant a steady movement away from the influence of Europe, a steady growth of independence on American lines. And to study this advance, the men who grew up under these conditions, and the political, economic, and social results of it, is to study the really American part of our history.

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Composite nationality.—First, we note that the frontier promoted the formation of a composite nationality for the American people. The coast was preponderantly English, but the later tides of continental immigration flowed across to the free lands.

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In the crucible of the frontier the immigrants were Americanized, liberated, and fused into a mixed race, English in neither nationality nor characteristics. The process has gone on from the early days to our own. Burke and other writers in the middle of the eighteenth century believed that Pennsylvania was "threatened with the danger of being wholly foreign in language, manners, and perhaps even inclinations." The German and Scotch-Irish elements in the frontier of the South were only less great. In the middle of the present century the German element in Wisconsin was already so considerable that leading publicists looked to the creation of a German state out of the commonwealth by concentrating their colonization. By the census of 1890 South Dakota had a percentage of persons of foreign parentage to total population of sixty; Wisconsin, seventy-three; Minnesota, seventy-five; and North Dakota, seventy-nine. Such examples teach us to beware of misinterpreting the fact that there is a common English speech in America into a belief that the stock is also English.

Industrial independence.—In another way the advance of the frontier decreased our dependence on England. The coast, particularly of the South, lacked diversified industries, and was dependent on England for the bulk of its supplies. Before long the frontier created a demand for merchants. As it retreated from the coast it became less and less possible for England to bring her supplies directly to the consumers' wharfs, and carry away staple crops, and staple crops began to give way to diversified agriculture for a time.

Effects on national legislation.—The legislation which most developed the power of the national government, and played the largest part in its activity, was conditioned on the frontier. Writers have discussed the subjects of tariff, land, and internal improvement as subsidiary to the slavery question. But when American history comes to be rightly viewed it will be seen that the slavery question is an incident. The growth of nationalism and the evolution of American political institutions were dependent on the advance of the frontier. The pioneer needed the goods of the coast, and so the grand series of internal improvement and railroad legislation began, with potent nationalizing effects. Over internal improvements occurred great debates, in which grave constitutional questions were discussed. Sectional groupings appear in the votes, profoundly significant for the historian. Loose construction increased as the nation marched westward. But the West was not content with bringing the farm to the factory. Under the lead of Clay—"Harry of the West"—protective tariffs were passed, with the cry of bringing the factory to the farm.

Effects on institutions.—It is hardly necessary to do more than mention the fact that the West was a field in which new political institutions were to be created. It offered a wide opportunity for speculative creation and for adjustment of old institutions to new conditions. The study of the evolution of western institutions shows how slight was the proportion of actual theoretic invention of institutions; but there is abundance of opportunity for study of the sources of the institutions actually chosen, the causes of the selection, the degree of transformation by the new conditions, and the new institutions actually produced by the new environment.

The public domain.—The public domain has been a force of profound importance in the nationalization and development of the government. The effects of the struggle of the landed and the landless states, and of the ordinance of 1787, need no discussion. Administratively the frontier called out some of the highest and most vitalizing activities of the general government. The purchase of Louisiana was perhaps the constitutional turning point in the history of the republic, inasmuch as it afforded both a new area for national legislation and the occasion of the downfall of the policy of strict construction. But the purchase of Louisiana was called out by frontier needs and demands. As frontier states accrued to the Union the national power grew.

When we consider the public domain from the point of view of the sale and disposal of the public lands, we are again brought face to face with the frontier. The policy of the United States in dealing with its lands is in sharp contrast with the European system of scientific administration. Efforts to make this domain a source of revenue, and to withhold it from emigrants in order that settlement might be compact, were in vain. The jealousy and the fears of the East were powerless in the face of the demands of the frontiersmen. John Quincy Adams was obliged to confess: "My own system of administration, which was to make the national domain the inexhaustible fund for progressive and unceasing internal improvement, has failed." The reason is obvious; a system of administration was not what the West demanded; it wanted land.

National Tendencies of the frontier.—It is safe to say that the legislation with regard to land, tariff, and internal improvements—the American system of the nationalizing Whig party—was conditioned on frontier ideas and needs. But it was not merely in legislative action that the frontier worked against the sectionalism of the coast. The economic and social characteristics of the frontier worked against sectionalism. The men of the frontier had closer resemblances to the middle region than to either of the other sections. Pennsylvania had been the seed plot of southern frontier emigration, and although she passed on her settlers along the Great Valley into the west of Virginia and the Carolinas, yet the industrial society of these southern frontiersmen was always more like that of the middle region than like that of the tidewater portion of the South, which later came to spread its industrial type throughout the South.

The middle region, entered by New York harbor, was an open door to all Europe. The tidewater part of the South represented typical Englishmen, modified by a warm climate and servile labor, and living in baronial fashion on great plantations; New England stood for a special English movement—Puritanism. The middle region was less English than the other sections. It had a wide mixture of nationalities, a varied society, the mixed town and county system of local government, a varied economic life, many religious sects. In short, it was a region mediating between New England and the South, and the East and the West. It represented the composite nationality which the contemporary United States exhibits, that juxtaposition of non-English groups, occupying a valley or a little settlement, and presenting reflections of the map of Europe in their variety. It was democratic and non-sectional, if not national; "easy, tolerant, and contented"; rooted strongly in material prosperity. It was typical of the modern United States. It was least sectional, not only because it lay between North and South, but also because with no barriers to shut out its frontiers from its settled region, and with a system of connecting waterways, the middle region mediated between East and West as well as between North and South. Thus it became the typically American region. Even the New Englander, who was shut out from the frontier by the middle region, tarrying in New York or Pennsylvania on his westward march, lost the acuteness of his sectionalism on the way.

Growth of democracy.—But the most important effect of the frontier has been in the promotion of democracy here and in Europe. As has been indicated, the frontier is productive of individualism. Complex society is precipitated by the wilderness into a kind of primitive organization based on the family. The tendency is anti-social. It produces antipathy to control, and particularly to any direct control.

The frontier states that came into the Union in the first quarter of a century of its existence came in with democratic suffrage provisions, and had reactive effects of the highest importance upon the older states whose peoples were being attracted there. An extension of the franchise became essential. It was *western* New York that forced an extension of suffrage in the constitutional convention of that state in 1821; and it was *western* Virginia that compelled the tidewater region to put a more liberal suffrage provision in the constitution framed in 1830, and to give to the frontier region a more nearly proportionate representation with the tidewater aristocracy. The rise of democracy as an effective force in the nation came in with western preponderance under Jackson and William Henry Harrison, and it meant the triumph of the frontier—with all of its good and with all of its evil element.

So long as free land exists, the opportunity for a competency exists, and economic power secures political power. But the democracy born of free land, strong in selfishness and individualism, intolerant of administrative experience and education, and pressing individual liberty beyond its proper bounds, has its dangers as well as its benefits. Individualism in America has allowed a laxity in regard to governmental affairs which has rendered possible the spoils system and all the manifest evils that follow from the lack of a highly developed civic spirit. In this connection may be noted also the influence of frontier conditions in permitting inflated paper currency and wildcat banking. The colonial and revolutionary frontier was the region whence emanated many of the worst forms of paper currency. The West in the War of 1812 repeated the phenomenon on the frontier of that day, while the speculation and wild-cat banking of the period of the crisis of 1837 occurred on the new frontier belt of the next tier of states. Thus each one of the periods of paper-money projects coincides with periods when a new set of frontier communities had arisen, and coincides in area with these successive frontiers, for the most part. The recent radical Populist agitation is a case in point. Many a state that now declines any connection with the tenets of the Populists itself adhered to such ideas in an earlier stage of the development of the state. A primitive society can hardly be expected to show the appreciation of the complexity of business interests in a developed society. The continual recurrence of these areas of paper-money agitation is another evidence that the frontier can be isolated and studied as a factor in American history of the highest importance.

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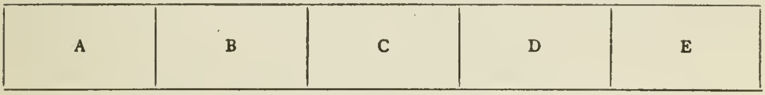
Intellectual traits.—From the conditions of frontier life came intellectual traits of profound importance. The works of travelers along each frontier from colonial days onward describe certain common traits, and these traits have, while softening down, still persisted as survivals in the place of their origin, even when a higher social organization succeeded. The result is that to the frontier the American intellect owes its striking characteristics. That coarseness and strength combined with acuteness and inquisitiveness; that practical inventive turn of mind, quick to find expedients; that masterful grasp of material things, lacking in the artistic, but powerful to effect great ends; that restless, nervous energy; that dominant individualism, working for good and for evil, and, withal, that buoyancy and exuberance which come with freedom—these are traits of the frontier, or traits called out elsewhere because of the existence of the frontier. We are not easily aware of the deep influence of this individualistic way of thinking upon our present conditions. It persists in the midst of a society that has passed away from the conditions that occasioned it. It makes it difficult to secure social regulation of business enterprises that are essentially public; it is a stumbling-block in the way of civil-service reform; it permeates our doctrines of education; but with the passing of the free lands a vast extension of the social tendency may be expected in America.

Ratzel, the well-known geographer, has pointed out the fact that for centuries the great unoccupied area of America furnished to the American spirit something of its own largeness. It has given a largeness of design and an optimism to American thought. Since the days when the fleet of Columbus sailed into the waters of the New World, America has been another name for opportunity, and the people of the United States have taken their tone from the incessant expansion which has not only been open, but has even been forced upon them. He would be a rash prophet who should assert that the expansive character of American life has now entirely ceased. Movement has been its dominant fact, and, unless this training has no effect upon a people, the American energy will continually demand a wider field for its exercise. But never again will such gifts of free land offer themselves. For a moment, at the frontier, the bonds of custom are broken and unrestraint is triumphant. There is not *tabula rasa.* The stubborn American environment is there with its imperious summons to accept its conditions; the inherited ways of doing things are also there; and yet, in spite of environment, and in spite of custom, each frontier did indeed furnish a new field of opportunity, a gate of escape from the bondage of the past; and freshness, and confidence, and scorn of older society, impatience of its restraints and its ideas, and indifference to its lessons have accompanied the frontier. What the Mediterranean Sea was to the Greeks, breaking the bond of custom, offering new experiences, calling out new institutions and activities, that, and more, the ever-retreating frontier has been to the United States directly, and to the nations of Europe more remotely. And now, four centuries from the discovery of America, at the end of a hundred years of life under the Constitution, the frontier has gone, and with its going has closed the first period of American history.

20. AN ILLUSTRATION OF THE LAW OF DIMINISHING RETURNS



A certain homogeneous strip of land was divided into five equal parts. These equal areas had the same exposure to the sun and weather, and soil analysis demonstrated that, humanly speaking, they were equal in every particular.

On strip A the application of 100 doses of labor, capital, and organization resulted in a yield of 200 bushels of product.

On strip B the application of 200 doses of precisely the same kinds of labor, capital, and organization resulted in a yield of 350 bushels. This yield was, of course, equivalent to 200 bushels for the first 100 doses and 150 bushels for the second 100 doses.

On strip C the application of 300 doses of this labor, capital, and organization resulted in a yield of 450 bushels of product, or 200 bushels for the first 100 doses, 150 bushels for the second 100 doses, and 100 bushels for the third 100 doses.

On strip D the application of 400 doses of this labor, capital, and organization yielded 500 bushels of product, or 200 bushels for the first 100 doses, 150 bushels for the second 100 doses, 100 bushels for the third 100 doses, and 50 bushels for the fourth 100 doses.

On strip E the application of 500 doses of this labor, capital, and organization resulted in 500 bushels of product. Obviously enough the last 100 doses of labor, capital, and organization yielded 0 bushels of product; in other words the returns to the last 100 doses had diminished to nothing, and the cultivation of the land had reached that stage known as maximum returns.

21. FACTORS COUNTERACTING DIMINISHING RETURNS[1]

There is another agency, in habitual antagonism to the law of diminishing return from land; and to the consideration of this we shall now proceed. It is no other than the progress of civilization. I use this general and somewhat vague expression, because the things to be included are so various, that hardly any term of a more restricted signification would comprehend them all.

Of these, the most obvious is the progress of agricultural knowledge, skill, and invention. Improved processes of agriculture are of two kinds: some enable the land to yield a greater absolute produce, without an equivalent increase of labor; others have not the power of increasing the produce, but have that of diminishing the labor and expense by which it is obtained. Among the first are to be reckoned the disuse of fallows, by means of the rotation of crops; and the introduction of new articles of cultivation capable of entering advantageously into the rotation. The change made in British agriculture toward the close of the [eighteenth] century, by the introduction of turnip husbandry, is spoken of as amounting to a revolution. These improvements operate not only by enabling the land to produce a crop every year instead of remaining idle one year in every two or three to renovate its powers, but also by direct increase of its productiveness; since the great addition made to the number of cattle by the increase of their food affords more abundant manure to fertilize the corn lands. Next in order comes the introduction of new articles of food containing a greater amount of sustenance, like the potato, or more productive species or varieties of the same plant, such as the Swedish turnip. In the same class of improvements must be placed a better knowledge of the properties of manures, and of the most effectual modes of applying them; the introduction of new and more powerful fertilizing agents, such as guano, and the conversion to the same purpose, of substances previously wasted; inventions like subsoil-ploughing or tile-draining; improvements in the breed or feeding of laboring cattle; augmented stock of the animals which consume and convert into human food what would otherwise be wasted; and the like. The other sort of improvements, those which diminish labor, but without increasing the capacity of the land to produce, are such as the improved construction of tools; the introduction of new instruments which spare manual labor, as the winnowing and threshing machines; a more skilful and economical application of muscular exertion, such as the introduction, so slowly accomplished in England, of Scotch ploughing, with two horses abreast and one man, instead of three or four horses in a team and two men, etc. These improvements do not add to the productiveness of the land, but they are equally calculated with the former to counteract the tendency in the cost of production of agricultural produce, to rise with the progress of population and demand.

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[1] From John Stuart Mill, *Principles of Political Economy*, Book I, chap. xii.

Analogous in effect to this second class of agricultural improvements, are improved means of communication. Good roads are equivalent to good tools. It is of no consequence whether the economy of labor takes place in extracting the produce from the soil, or in conveying it to the place where it is to be consumed. Not to say in addition, that the labor of cultivation itself is diminished by whatever lessens the cost of bringing manure from a distance, or facilitates the many operations of transport from place to place which occur within the bounds of the farm. Railways and canals are virtually a diminution of the cost of production of all things sent to market by them; and literally so of all those, the appliances and aids for producing which, they serve to transmit. By their means land can be cultivated which would not otherwise have remunerated the cultivators without a rise of price. Improvements in navigation have, with respect to food or materials brought from beyond sea, a corresponding effect.

From similar considerations, it appears that many purely mechanical improvements, which have, apparently at least, no peculiar connection with agriculture, nevertheless enable a given amount of food to be obtained with a smaller expenditure of labor. A great improvement in the process of melting iron, would tend to cheapen agricultural implements, diminish the cost of railroads, of wagons and carts, ships, and perhaps buildings, and many other things to which iron is not at present applied, because it is too costly; and would thence diminish the cost of production of food. The same effect would follow from an improvement in those processes of what may be termed manufacture, to which the material of food is subjected after it is separated from the ground. The first application of wind or water power to grind corn, tended to cheapen bread as much as a very important discovery in agriculture would have done; and any great improvement in the construction of corn-mills, would have, in proportion, a similar influence. The effects of cheapening locomotion have been already considered. There are also engineering inventions which facilitate all great operations on the earth's surface. An improvement in the art of taking levels is of importance to draining, not to mention canal and railway making. The fens of Holland, and of some parts of England, are drained by pumps worked by the wind or by steam. Where canals of irrigation, or where tanks or embankments are necessary, mechanical skill is a great resource for cheapening production.

There is, thus, no possible improvement in the arts of production which does not in one or another mode exercise an antagonistic influence to the law of diminishing return to agricultural labor. Nor is it only industrial improvements which have this effect. Improvements in government, and almost every kind of moral and social advancement, operate in the same manner. Suppose a country in the condition of France before the Revolution: taxation imposed almost exclusively on the industrious classes, and on such a principle as to be an actual penalty on production; and no redress obtainable for any injury to property or person, when inflicted by people of rank or court influence. Was not the hurricane which swept away this system of things, even if we look no further than to its effect in augmenting the productiveness of labor, equivalent to many industrial inventions? The removal of a fiscal burthen on agriculture, such as tithe, has the same effect as if the labor necessary for obtaining the existing produce were suddenly reduced one-tenth. The abolition of corn laws, or of any other restrictions which prevent commodities from being produced where the cost of their production is lowest, amounts to a vast improvement in production. When fertile land, previously reserved as hunting ground, or for any other purpose of amusement, is set free for culture, the aggregate productiveness of agricultural industry is increased. It is well known what has been the effect in England of badly administered poor laws, and the still worse effect in Ireland of a bad system of tenancy, in rendering agricultural labor slack and ineffective. No improvements operate more directly upon the productiveness of labor than those in the tenure of farms, and in the laws relating to landed property. The breaking up of entails, the cheapening of the transfer of property, and whatever else promotes the natural tendency of land in a system of freedom, to pass out of hands which can make little of it into those which can make more; the substitution of long leases for tenancy at will, and of any tolerable system of tenancy whatever for the wretched cottier system; above all, the acquisition of a permanent interest in the soil by the cultivators of it; all these things are as real, and some of them as great, improvements in production, as the invention of the spinning jenny or the steam engine.

We may say the same of improvement in education. The intelligence of the workman is a most important element in the productiveness of labor. So low, in some of the most civilized countries, is the present standard of intelligence, that there is hardly any source from which a more indefinite amount of improvement may be looked for in productive power, than by endowing with brains those who now have only hands. The carefulness, economy, and general trustworthiness of laborers are as important as their intelligence. Friendly relations, and a community of interest and feeling between laborers and employers, are eminently so: I should rather say, would be; for I know not where any such sentiment of friendly alliance now exists. Nor is it only in the laboring class that improvement of mind and character operates with beneficial effect even on industry. In the rich and idle classes, increased mental energy, more solid instruction, and stronger feelings of conscience, public spirit, or philanthropy, would qualify them to originate and promote the most valuable improvements, both in the economical resources of their country, and in its institutions and customs. To look no further than the most obvious phenomena, the backwardness of French agriculture in the precise points in which benefit might be expected from the influence of an educated class, is partly accounted for by the exclusive devotion of the richer landed proprietors to town interests and town pleasures. There is scarcely any possible amelioration of human affairs which would not, among its other benefits, have a favorable operation, direct or indirect, upon the productiveness of industry. The intensity of devotion to industrial occupations would indeed in many cases be moderated by a more liberal and genial mental culture, but the labor actually bestowed on those occupations would almost always be rendered more effective.

22. NATURAL RESOURCES OF THE UNITED STATES, AND THEIR CONSERVATION[1]

In the growth of the country and the gradual development of its natural resources there have been three noteworthy stages. The first stage was that of individual enterprise for personal and family benefit. It led to the conquest of the wilderness.

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[1] Compiled from the *Report of the National Conservation Commission* (1909).

The next stage was that of collective enterprise, either for the benefit of communities or for the profit of individuals forming the communities. It led to the development of cities and states, and too often to the growth of great monopolies.

The third stage is the one we are now entering. Within it the enterprise is collective and largely co-operative, and should be directed toward the larger benefit of communities, states, and the people generally.

In the first stage, the resources received little thought. In the second, they were wastefully used. In the stage which we are entering, wise and beneficial uses are essential, and the checking of waste is absolutely demanded.

The wastes which most urgently require checking vary widely in character and amount. The most reprehensible waste is that of destruction, as in forest fires, uncontrolled flow of gas and oil, soil wash, and abandonment of coal in the mines. This is attributable, for the most part, to ignorance, indifference, or false notions of economy, to rectify which is the business of the people collectively.

Nearly as reprehensible is the waste arising from misuse, as in the consumption of fuel in furnaces and engines of low efficiency, the loss of water in floods, the employment of ill-adapted structural materials, the growing of ill-chosen crops, and the perpetuation of inferior stocks of plants and animals, all of which may be remedied.

Reprehensible in less degree is the waste arising from nonuse. Since the utilization of any one resource is necessarily progressive and dependent on social and industrial conditions and the concurrent development of other resources, nonuse is sometimes unavoidable. It becomes reprehensible when it affects the common welfare and entails future injury. Then, it should be rectified in the general interest.

For the prevention of waste the most effective means will be found in the increase and diffusion of knowledge, from which is sure to result an aroused public sentiment demanding prevention. The people have the matter in their own hands. They may prevent or limit the destruction of resources and restrain misuse through the enactment and enforcement of appropriate state and federal laws.

Wastes reduced and resources saved are the first but not the last object of conservation. The material resources have an additional value when their preservation adds to the beauty and habitability of the land. Ours is a pleasant land in which to dwell. To increase its beauty and augment its fitness cannot but multiply our pleasure in it and strengthen the bonds of our attachment.

MINERALS

The mineral production of the United States for 1907 exceeded $2,000,000,000, and contributed 65 per cent of the total freight traffic of the country. The waste in the extraction and treatment of mineral products during the same year was equivalent to more than $300,000,000.

The production for 1907 included 395,000,000 tons of bituminous and 85,000,000 tons of anthracite coal, 166,000,000 barrels of petroleum, 52,000,000 tons of iron ore, 2,500,000 tons of phosphate rock, and 869,000,000 pounds of copper. The values of other mineral products during the same year included clay products, $162,000,000; stone, $71,000,000; cement, $56,000,000; natural gas, $53,000,000; gold, $90,000,000; silver, $37,000,000; lead, $39,000,000, and zinc $26,000,000.

The available and easily accessible supplies of coal in the United States aggregate, approximately, 1,400,000,000,000 tons. At the present increasing rate of production this supply will be so depleted as to approach exhaustion before the middle of the next century.

The coal fields are divided, for the sake of convenience in classification, into six main provinces, as follows:

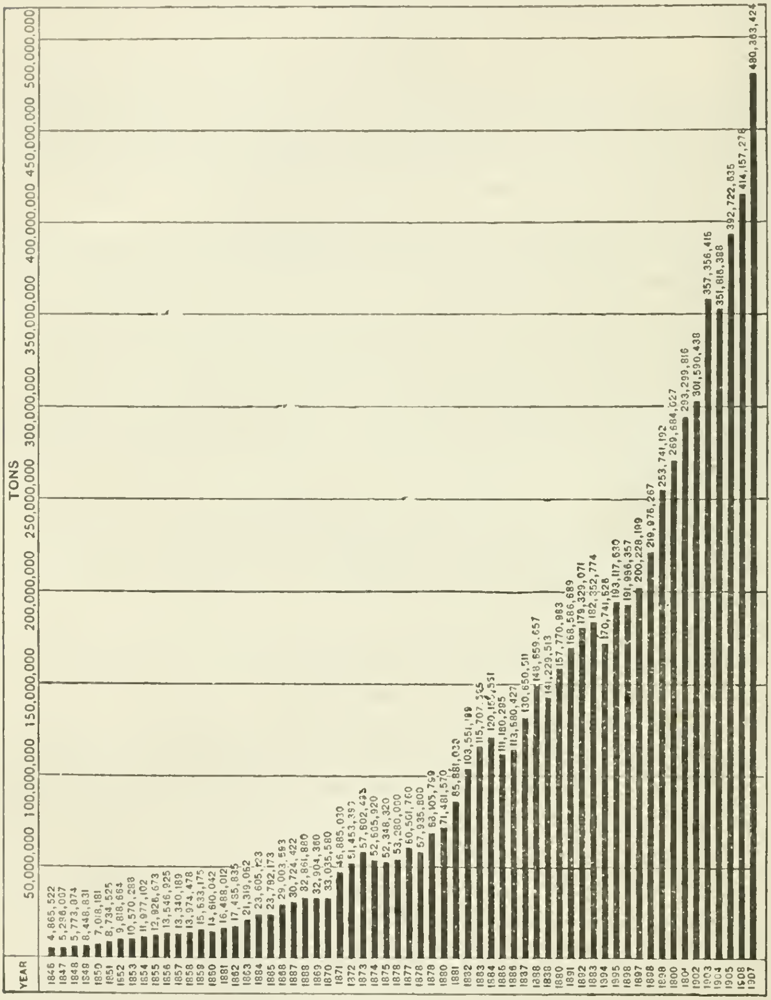
1. The eastern province, containing the anthracite coal fields of Pennsylvania and the bituminous coal fields of the Appalachian region, i.e., those of western Pennsylvania, Ohio, Virginia, West Virginia, Kentucky, Tennessee, Georgia, Alabama, and small outlying areas in North Carolina.

2. The interior province, containing the bituminous coal-producing regions of Michigan, Illinois, Indiana, western Kentucky, Iowa, Kansas, Missouri, Oklahoma, Arkansas, and Texas.

3. The Gulf province, containing the lignite areas of Alabama, Mississippi, Louisiana, Arkansas, and Texas.

4. The northern Great Plains province, containing the lignite subbituminous areas of North and South Dakota, eastern Montana and northeastern Wyoming.

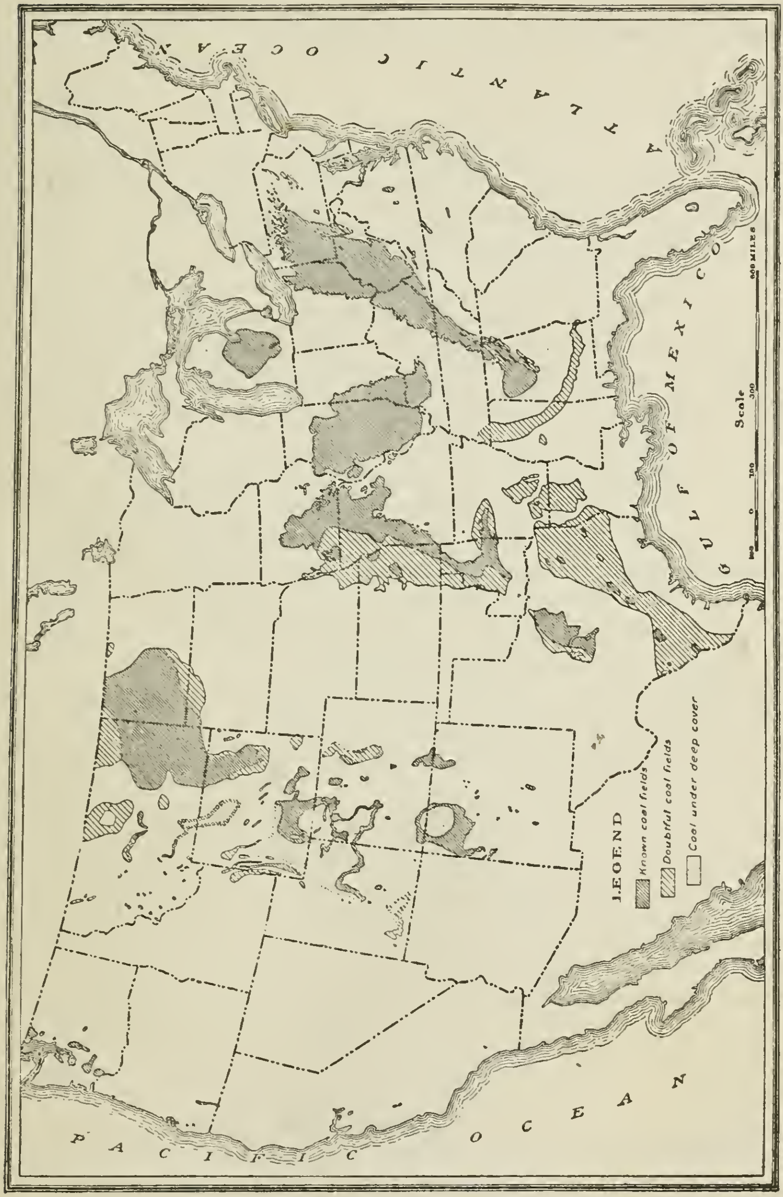
5. The Rocky Mountain province, containing the bituminous and subbituminous areas of western Montana and western Wyoming, Colorado, Utah, and New Mexico.



PRODUCTION OF COAL IN THE UNITED STATES FROM 1846 TO 1907

6. The Pacific coast province, containing the areas of Washington, Oregon, and California.

The known supply of high-grade iron ores in the United States approximates 4,788,150,000 tons, which at the present increasing



DISTRIBUTION OF COAL FIELDS IN THE UNITED STATES rate of consumption cannot be expected to last beyond the middle of the present century. In addition to this, there are assumed to be 75,116,070,000 tons of lower grade iron ores which are not available for use under existing conditions.

The supply of stone, clay, cement, lime, sand, and salt is ample, while the stock of the precious metals and of copper, lead, zinc, sulphur, asphalt, graphite, quicksilver, mica, and the rare metals cannot well be estimated, but is clearly exhaustible within one to three centuries unless unexpected deposits be found.

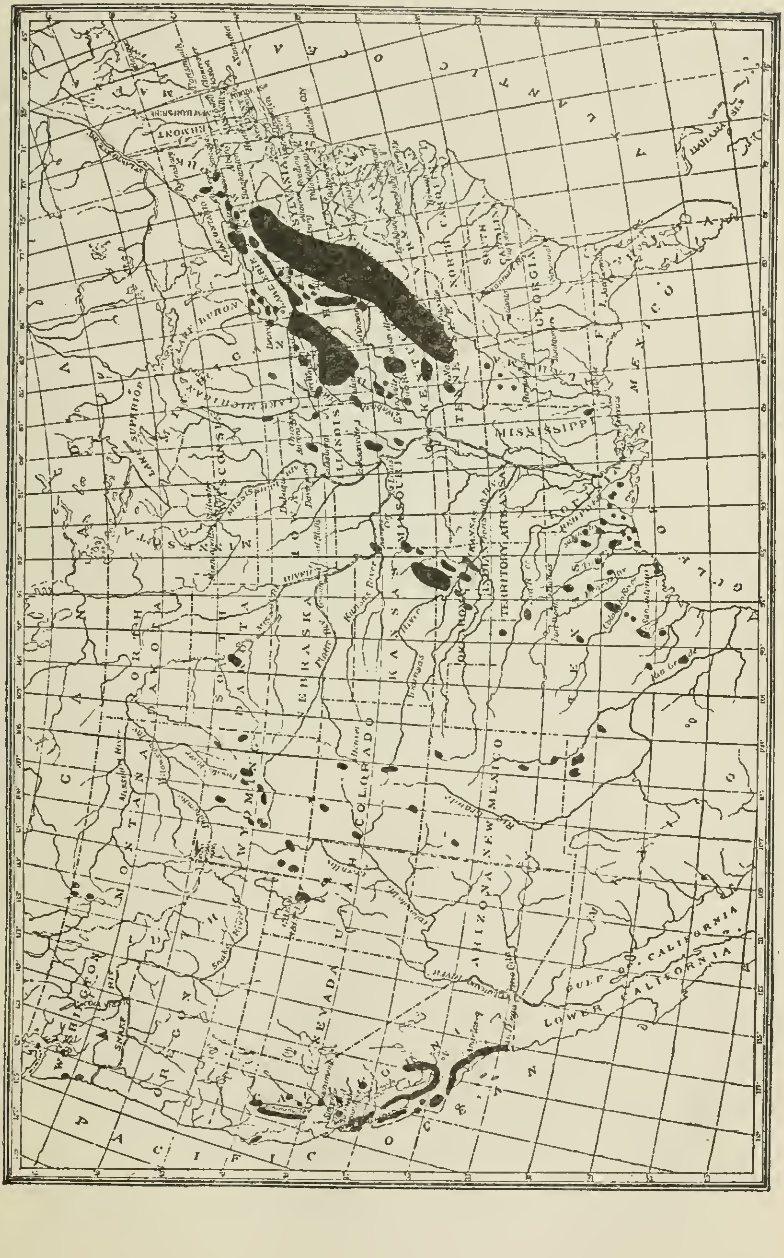
The known supply[1] of petroleum is estimated at 15,000,000,000 to 20,000,000,000 barrels, distributed through six separate fields having an aggregate area of 8,900 square miles. The production is rapidly increasing, while the wastes and the loss through misuse are enormous. The supply cannot be expected to last beyond the middle of the present century.

The known natural-gas fields aggregate an area of 9,000 square miles, distributed through 22 states. Of the total yield from these fields during 1907, 400,000,000,000 cubic feet, valued at $62,000,000, were utilized, while an equal quantity was allowed to escape into the air. The daily waste of natural gas—the most perfect known fuel—is over 1,000,000,000 cubic feet, or enough to supply every city in the United States of over 100,000 population.

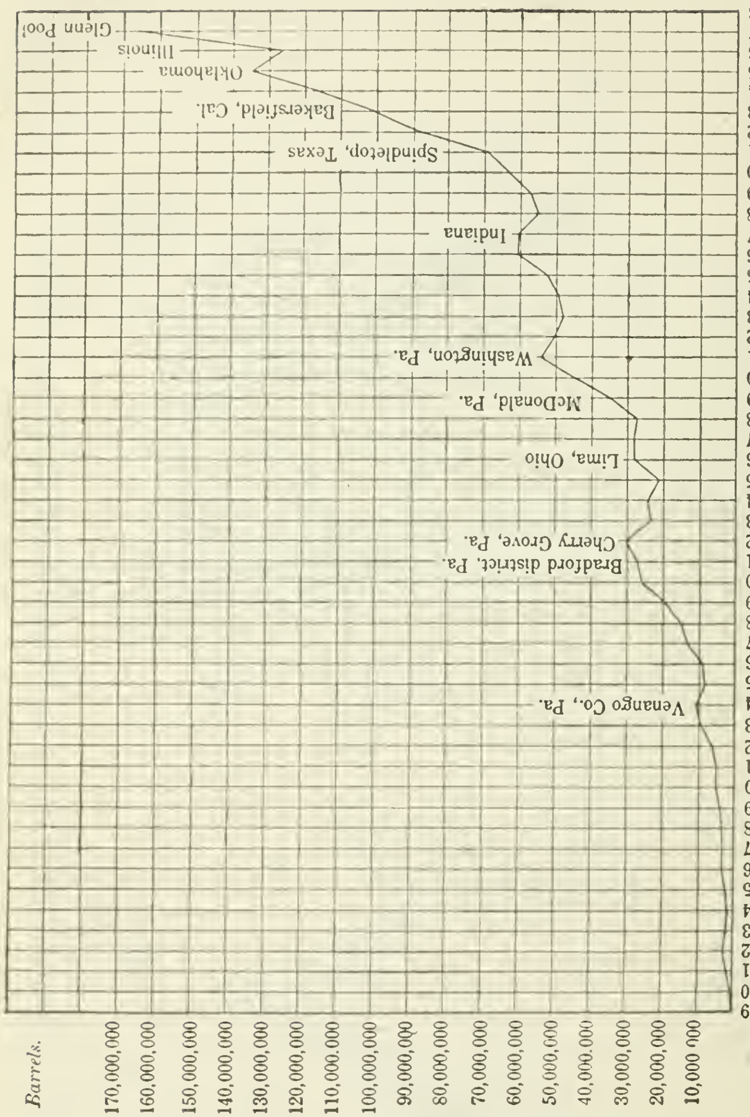
Phosphate rock, used for fertilizer, represents the slow accumulation of organic matter during past ages. In most countries it is scrupulously preserved; in this country it is extensively exported,

[1] The petroleum fields of the United States are: (1) the Appalachian field, extending from western New York to Tennessee; (2) the Lima-Indiana field in northwestern Ohio and eastern Indiana; (3) the Illinois field, near the eastern edge of the state; (4) the mid-continent field, comprising the pools in Kansas, Oklahoma, northwestern Louisiana, and northern Texas; (5) the Gulf field, lying mainly in Texas and Louisiana, and (6) the California field. These great fields control the industry. West of the mid-continent field and east of the California field are several smaller ones (as thus far developed) in Colorado and Wyoming, with promises of fields in New Mexico, Utah, Idaho, Montana, Oregon, and Washington. In Alaska at least two petroleum pools have been discovered which may possibly be capable of considerable output when the market conditions become favorable.

There are many regions in the United States where there is no geological improbability of finding petroleum. Such geological improbability exists where the rocks are greatly disturbed and broken up to such a depth as to prevent probable drilling to the undisturbed sedimentary rocks which could furnish good storage for petroleum.



Petroleum and Natural Gas Fields



Annual Production of Petroleum from 1859 to 1907 and largely for this reason its production is increasing rapidly. The original supply cannot long withstand the increasing demand.

The consumption of nearly all our mineral products is increasing far more rapidly than our population. In many cases the waste is increasing more rapidly than the number of our people. In 1776 but a few dozen pounds of iron were in use by the average family; now our annual consumption of high-grade ore is over 1,200 pounds per capita. In 1812 no coal was used; now the consumption is over 5 tons and the waste nearly 3 tons per capita.

While the production of coal is increasing enormously, the waste and loss in mining are diminishing. At the beginning of our mineral development the coal abandoned in the mine was two or three times the amount taken out and used. Now the mine waste averages little more than half the amount saved. The chief waste is in imperfect combustion in furnaces and fire boxes. Steam engines utilize on the average about 8 per cent of the thermal energy of the coal. Internal-combustion engines utilize less than 20 per cent, and in electric lighting far less than 1 per cent of the thermal energy is rendered available.

With increasing industries new mineral resources become available from time to time. Some lignites and other low-grade coals are readily gasified and, through the development of internal-combustion engines, may be made to check the consumption of high-grade coals.

Peat is becoming important; it is estimated that 14,000,000,000 tons are available in the United States. Its value is enhanced because of distribution through states generally remote from the fields of coal, oil, and natural gas.

The uses of all our mineral resources are interdependent. This is especially true of coal and iron, of which neither can be produced or used without aid from the other, and in the production or reduction of all other minerals both coal and iron are employed. The same standard minerals are necessary to the development of power, of which the use is increasing more rapidly than that of any other commodity.

The building operations of the country now aggregate about $1,000,000,000 per year. The direct and indirect losses from fire in the United States during 1907 approximated $450,000,000, or one-half the cost of construction. Of this loss four-fifths, or an average of $1,000,000 per day, could be prevented, as shown by comparison with the standards of construction and fire losses in the larger European countries.

So far as the ores are taken from the mines and reduced to metals, these resources are capitalized; but after thus being changed to a more valuable form they should be so used as to reduce to a minimum the loss by rust, electrolytic action, and other wastes.

There is urgent need for greater safety to the miner. The loss of life through mine accidents is appalling, and preventive measures cannot be taken too soon.

The national government should exercise such control of the mineral fuels and phosphate rocks now in its possession as to check waste and prolong our supply.

While the distribution and quantity of most of our important mineral substances are known in a general way, there is imperative need for further surveys and investigations and for researches concerning the less-known minerals.

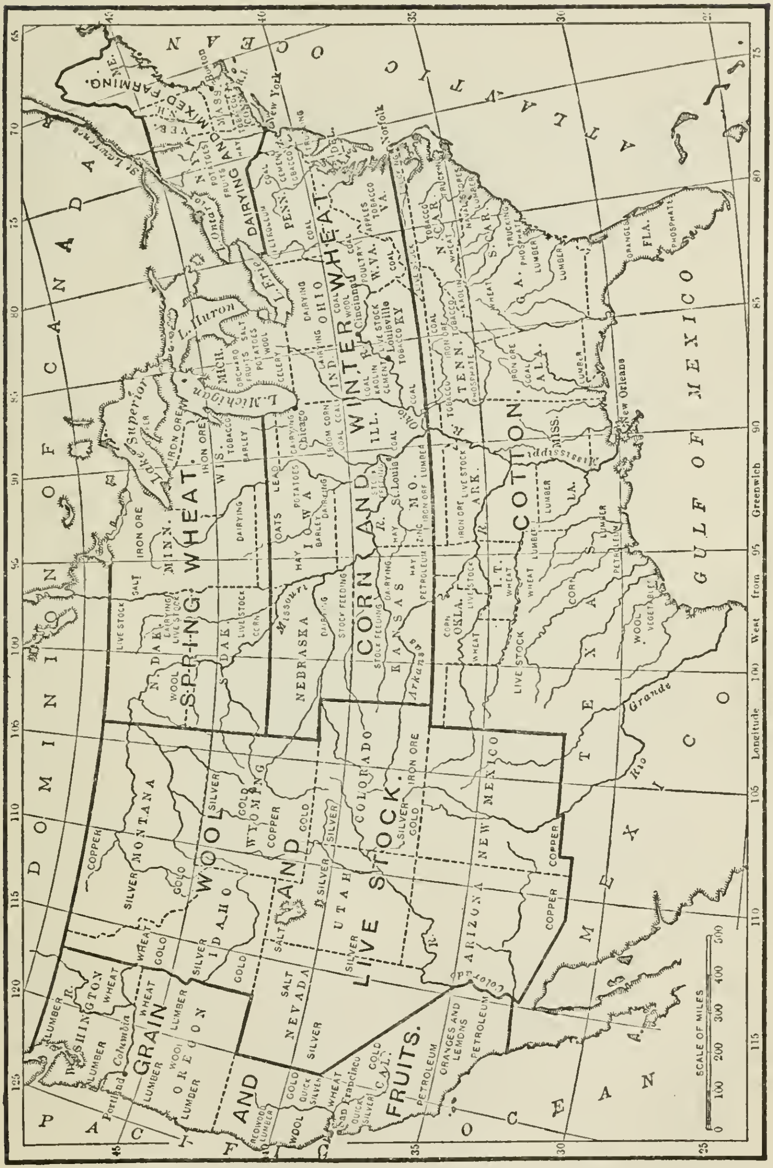
LANDS

The total land area of continental United States is 1,920,000,000 acres. Of this but little more than two-fifths is in farms, and less than one-half of the farm area is improved and made a source of crop production. We have nearly 6,000,000 farms; they average 146 acres each. The value of the farms is nearly one-fourth the wealth of the United States. There are more than 300,000,000 acres of public grazing land. The number of persons engaged in agricultural pursuits is more than 10,000,000.

We grow one-fifth of the world's wheat crop, three-fifths of its cotton crop, and four-fifths of its corn crop. We plant nearly 50,000,000 acres of wheat annually, with an average yield of about 14 bushels per acre; 100,000,000 acres of corn, yielding an average of 25 bushels per acre; and 30,000,000 acres of cotton, yielding about 12,000,000 bales.

We had on January 1, 1908, 71,000,000 cattle, worth $1,250,000,000; 54,000,000 sheep, worth $211,000,000; and 56,000,000 swine, worth $339,000,000. The census of 1900 showed $137,000,000 worth of poultry in this country, which produced in 1899, 293,000,000 dozen eggs.

There has been a slight increase in the average yield of our great staple farm products, but neither the increase in acreage nor the yield per acre has kept pace with our increase in population. Within a century we shall probably have to feed three times as many people as now; and the main bulk of our food supply must be grown on our own soil.



REGIONAL DISTRIBUTION OF PRODUCTS IN THE UNITED STATES

The area of cultivated land may possibly be doubled. In addition to the land awaiting the plow, 75,000,000 acres of swamp land can be reclaimed, 40,000,000 acres of desert land irrigated, and millions of acres of brush and wooded land cleared. Our population will increase continuously, but there is a definite limit to the increase of our cultivated acreage. Hence we must greatly increase the yield per acre. The average yield of wheat in the United States is less than 14 bushels per acre, in Germany 28 bushels, and in England 32 bushels. We get 30 bushels of oats per acre, England nearly 45, and Germany more than 47. Our soils are fertile, but our mode of farming neither conserves the soil nor secures full crop returns. Soil fertility need not be diminished, but may be increased. The large yields now obtained from farms in Europe which have been cultivated for a thousand years prove this conclusively. Proper management will double our average yield per acre. The United States can grow the farm products needed by a population more than three times as great as our country now contains.

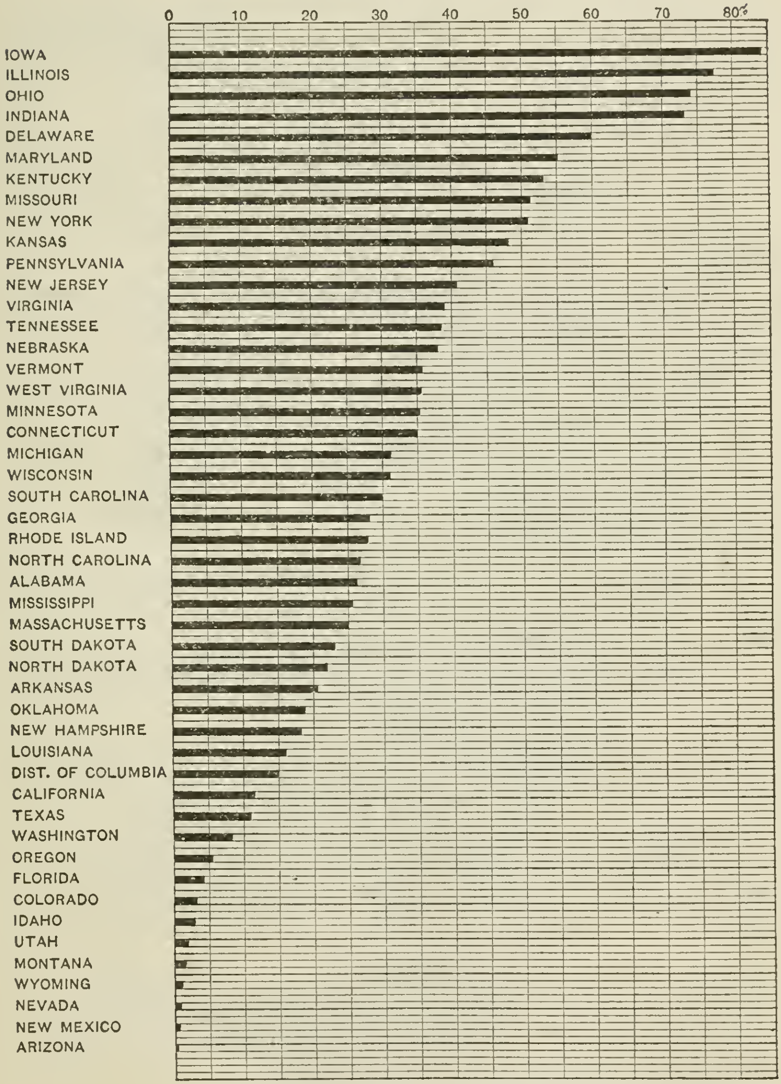
The greatest unnecessary loss of our soil is preventable erosion. Second only to this is the waste, nonuse, and misuse of fertilizer derived from animals and men.

The losses to farm products due to injurious mammals is estimated at $130,000,000 annually; the loss through plant diseases reaches several hundred million dollars; and the loss through insects is reckoned at $659,000,000. The damage by birds is balanced by their beneficent work in destroying noxious insects. Losses due to the elements are large, but no estimate has been made of them. Losses to live stock from these causes are diminishing because of protection and feeding during winter. The annual losses from disease among domestic animals are: Horses, 1.8 per cent; cattle, 2 per cent; sheep, 2.2 per cent, and swine, 5.1 per cent. Most of these farm losses are preventable.

There is a tendency toward consolidation of farm lands. The estimated area of abandoned farms is 16,000 square miles, or about 3 per cent of the improved land. The causes of abandonment differ in different parts of the country. Where most prevalent, it is caused principally by erosion and exhaustion of the soil.

The product of the fisheries of the United States has an annual value of $57,000,000. Fish culture is carried on by the nation and the states on an enormous scale. Most of the more important food species are propagated, and several species are maintained in that way. Fish from forest waters furnish $21,000,000 worth of food yearly, a supply dependent on the preservation of the forests.

PERCENTAGE OF IMPROVED LAND TO TOTAL AREA.



Our wild game and fur-bearing animals have been largely exterminated. To prevent their complete extinction the states and the

United States have taken in hand their protection, and their numbers are now increasing. Forest game yields over $10,000,000 worth of food each year.

With game birds the story is much the same—wanton destructions until the number has been greatly reduced, followed in recent years by wise protection, which in some cases allows the remnant to survive and even to increase.

Each citizen of the United States owns an equal undivided interest in about 387,000,000 acres of public lands, exclusive of Alaska and the insular possessions. Besides this there are about 235,000,000 acres of national forests, national parks, and other lands devoted to public use.

Good business sense demands that a definite land policy be formulated. The National Conservation Commission believes that the following will serve as a basis therefor:

1. Every part of the public lands should be devoted to the use which will best subserve the interests of the whole people.

2. The classification of all public lands is necessary for their administration in the interests of the people.

3. The timber, the minerals, and the surface of the public lands should be disposed of separately.

4. Public lands more valuable for conserving water supply, timber, and natural beauties or wonders than for agriculture should be held for the use of the people from all except mineral entry.

5. Title to the surface of the remaining nonmineral public lands should be granted only to actual home makers.

6. Pending the transfer of title to the remaining public lands they should be administered by the government and their use should be allowed in a way to prevent or control waste and monopoly.

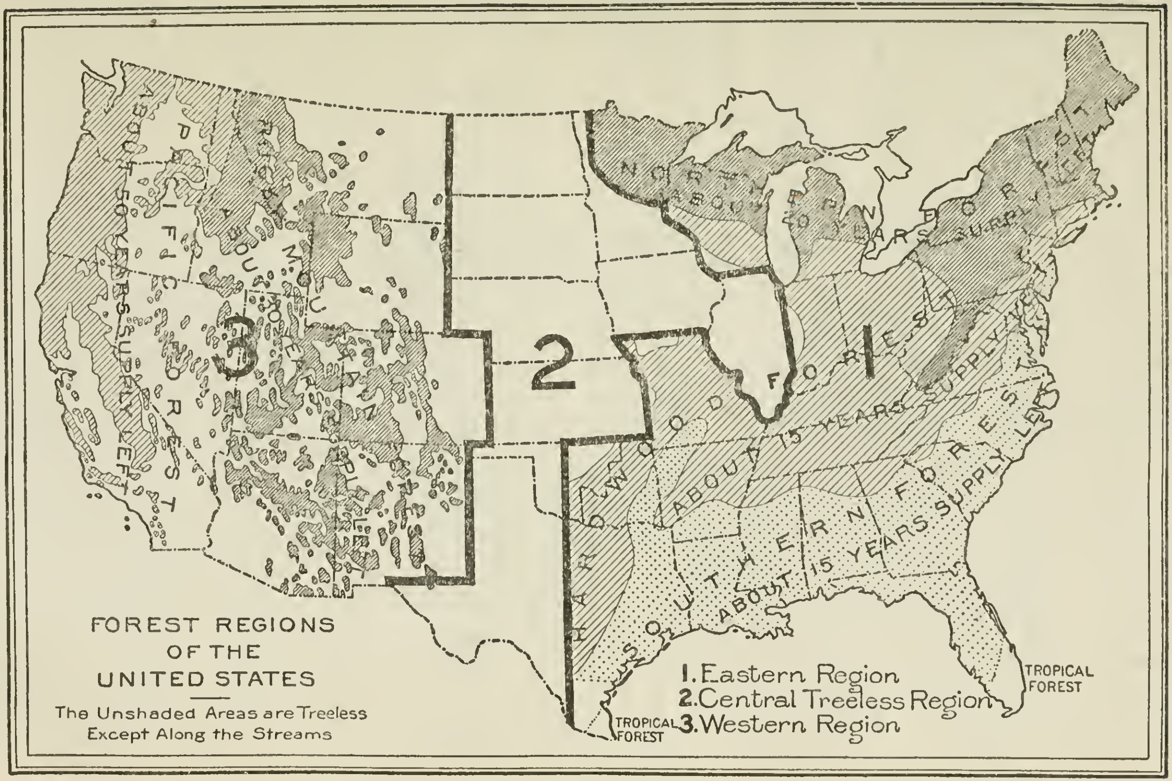
The present public-land laws as a whole do not subserve the best interests of the nation. They should be modified so far as may be required to bring them into conformity with the foregoing outline of policy.

FORESTS

Next to our need of food and water comes our need of timber.

Our industries which subsist wholly or mainly upon wood pay the wages of more than 1,500,000 men and women.

Forests not only grow timber, but they hold the soil and they conserve the streams. They abate the wind and give protection from



NORTHERN FOREST
ABOUT 20 YEARS SUPPLY LEFT
HARDWOOD FOREST
ABOUT 15 YEARS SUPPLY LEFT
SOUTHERN FOREST
ABOUT 15 YEARS SUPPLY LEFT
ROCKY MOUNTAIN FOREST
ABOUT 30 YEARS SUPPLY LEFT
PACIFIC FOREST
ABOUT 50 YEARS SUPPLY LEFT
TROPICAL FOREST
TROPICAL FOREST
1
2
3

FOREST REGIONS
OF THE
UNITED STATES

The Unshaded Areas are Treeless Except Along the Streams

1. Eastern Region
2. Central Treeless Region
3. Western Region

excessive heat and cold. Woodlands make for the fiber, health, and happiness of the citizen and the nation.

Our forests now cover 550,000,000 acres, or about one-fourth of the United States. The original forests covered not less than 850,000,000 acres.

Forests publicly owned contain one-fifth of all our standing timber. Forests privately owned contain four-fifths of the standing timber. The timber privately owned is not only four times that publicly owned, but is generally more valuable.

Forestry is now practiced on 70 per cent of the forests publicly owned and on less than 1 per cent of the forests privately owned, or on only 18 per cent of the total area of forests.

The yearly growth of wood in our forests does not average more than 12 cubic feet per acre. This gives a total yearly growth of less than 7,000,000,000 cubic feet.

We have 200,000,000 acres of mature forests, in which yearly growth is balanced by decay; 250,000,000 acres partly cut over or burned over, but restocking naturally with enough young growth to produce a merchantable crop, and 100,000,000 acres cut over and burned over, upon which young growth is lacking or too scanty to make merchantable timber.

We take from our forests yearly, including waste in logging and in manufacture, 23,000,000,000 cubic feet of wood. We use each year 100,000,000 cords of firewood; 40,000,000,000 feet of lumber; more than 1,000,000,000 posts, poles, and fence rails; 118,000,000 hewn ties; 1,500,000,000 staves; over 133,000,000 sets of heading; nearly 500,000,000 barrel hoops; 3,000,000 cords of native pulp wood; 165,000,000 cubic feet of round mine timbers, and 1,250,000 cords of wood for distillation.

Since 1870 forest fires have destroyed a yearly average of 50 lives and $50,000,000 worth of timber. Not less than 50,000,000 acres of forest is burned over yearly. The young growth destroyed by fire is worth far more than the merchantable timber burned.

One-fourth of the standing timber is lost in logging. The boxing of long-leaf pine for turpentine has destroyed one-fifth of the forests worked. The loss in the mill is from one-third to two-thirds of the timber sawed. The loss of mill product in seasoning and fitting for use is from one-seventh to one-fourth.

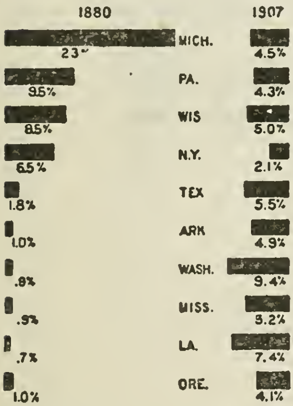
Of each 1,000 feet which stood in the forest, an average of only 320 feet of lumber is used.

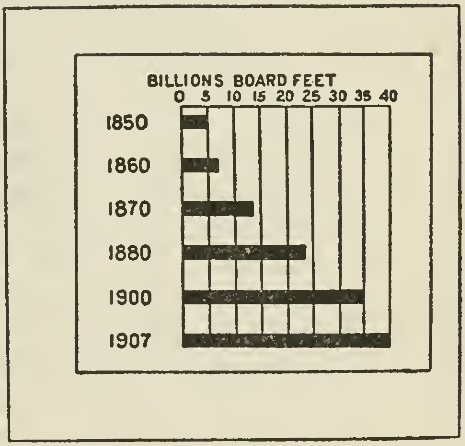
We take from our forests each year, not counting the loss by fire, three and a half times their yearly growth. We take 40 cubic feet per acre for each 12 cubic feet grown; we take 260 cubic feet per capita, while Germany uses 37 and France 25 cubic feet.

We tax our forests under the general property tax, a method abandoned long ago by every other great nation. Present tax laws prevent reforestation of cut-over land and the perpetuation of existing forests by use.

Great damage is done to standing timber by injurious forest insects. Much of this damage can be prevented at small expense.

To protect our farms from wind and to reforest land best suited for forest growth will require tree planting on an area larger than Pennsylvania, Ohio, and West Virginia combined. Lands so far successfully planted make a total area smaller than Rhode Island; and year by year, through careless cutting and fires, we lower the capacity of existing forests to produce their like again, or else totally destroy them.

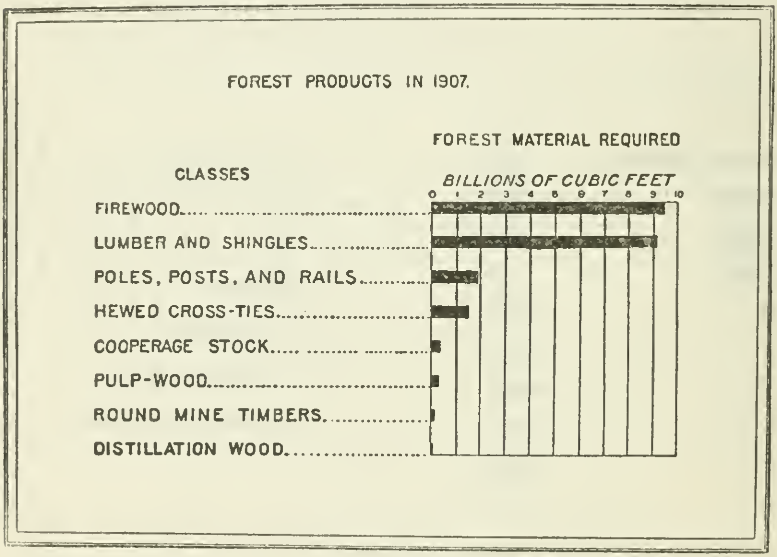

RELATIVE LUMBER PRODUCTION IN TEN STATES IN 1880 AND 1907



In spite of substitutes we shall always need much wood. So far our use of it has steadily increased. The condition of the world's supply of timber makes us already dependent upon what we produce. We send out of our country one and a half times as much timber as we bring in. Except for finishing woods, relatively small in amount, we must grow our own supply or go without. Until we pay for our lumber what it costs to grow it, as well as what it costs to log and saw, the price will continue to rise.

The preservation by use, under the methods of practical forestry, of all public forest lands, either in state or federal ownership, is essential to the permanent public welfare. In many forest states the acquirement of additional forest lands as state forests is necessary to the best interests of the states themselves.

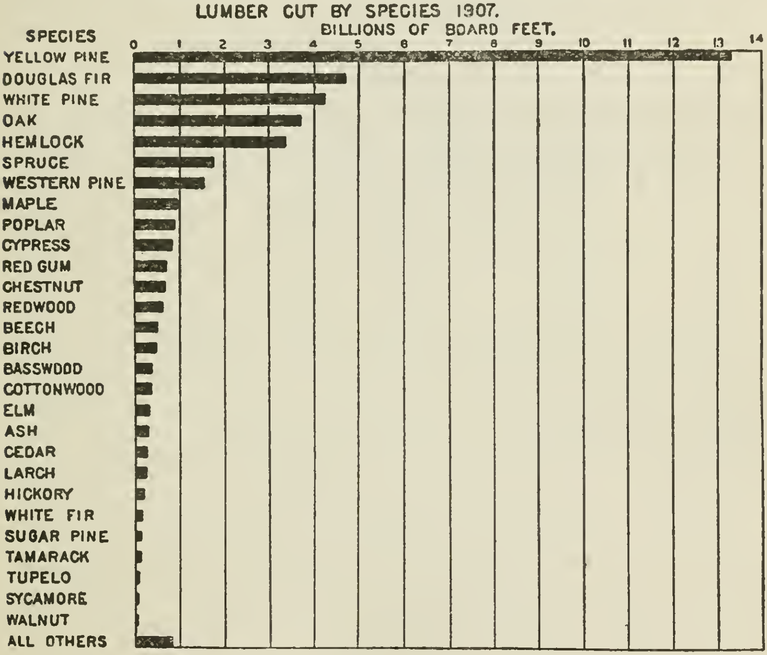
The conservation of our mountain forests, as in the Appalachian system, is a national necessity. These forests are required to aid in the regulation of streams used for navigation and other purposes. The conservation of these forests is impracticable through private enterprise alone, by any state alone, or by the federal government alone. Effective and immediate co-operation between these three agencies is essential. Federal ownership of limited protective areas upon important watersheds, effective state fire patrol, and the co-operation of private forest owners are all required.



The true remedy for unwise tax laws lies not in laxity in their application nor in special exemptions, but in a change in the method of taxation. An annual tax upon the land itself, exclusive of the value of the timber, and a tax upon the timber when cut, is well adapted to actual conditions of forest investment, and is practicable and certain. It is far better that forest land should pay a moderate tax permanently than that it should pay an excessive revenue temporarily and then cease to pay at all.

Forests in private ownership cannot be conserved unless they are protected from fire. We need good fire laws, well enforced. Fire control is impossible without an adequate force of men whose sole duty is fire patrol during the dangerous season.

The conservative use of the forest and of timber by American citizens will not be general until they learn how to practice forestry. Through a vigorous national campaign in education, forestry has taken root in the great body of American citizenship. The basis already exists upon which to build a structure of forest conservation which will endure. This needs the definite commitment of state governments and the federal government to their inherent duty of teaching the people how to care for their forests. The final responsibility, both for investigative work in forestry and for making its results known, rests upon the states and upon the nation.



By reasonable thrift, we can produce a constant timber supply beyond our present need, and with it conserve the usefulness of our streams for irrigation, water supply, navigation, and power.

Under right management our forests will yield over four times as much as now. We can reduce waste in the woods and in the mill at least one-third, with present as well as future profit. We can perpetuate the naval-stores industry. Preservative treatment will reduce by one-fifth the quantity of timber used in the water or in the ground. We can practically stop forest fires at a cost yearly of one-fifth the value of the merchantable timber burned.

We shall suffer for timber to meet our needs until our forests have had time to grow again. But if we act vigorously and at once we shall escape permanent timber scarcity.

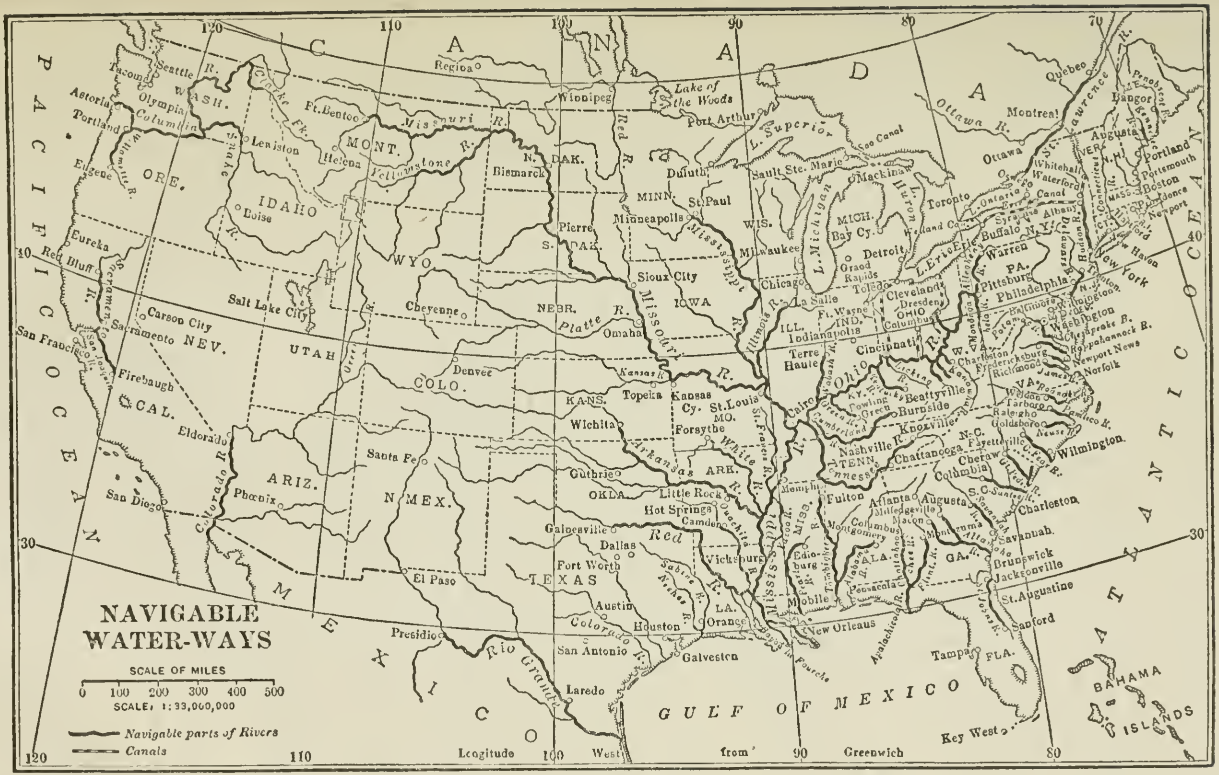
WATERS

The sole source of our fresh water is rainfall, including snow. From this source all running, standing, and ground waters are derived. The habitability of the country depends on these waters. Our mean annual rainfall is about 30 inches; the quantity about 215,000,000,000,000 cubic feet per year, equivalent to ten Mississippi rivers.

Of the total rainfall, over half is evaporated; about a third flows into the sea; the remaining sixth is either consumed or absorbed. These portions are sometimes called, respectively, the fly-off, the run-off, and the cut-off. They are partly interchangeable. About a third of the run-off, or a tenth of the entire rainfall, passes through the Mississippi. The run-off is increasing with deforestation and cultivation.

Of the 70,000,000,000,000 cubic feet annually flowing into the sea, less than 1 per cent is retained and utilized for municipal and community supply; less than 2 per cent (or some 10 per cent of that in the arid and semi-arid regions) is used for irrigation; perhaps 5 per cent is used for navigation, and less than 5 per cent for power.

For municipal and community water supply there are protected catchment areas aggregating over 1,000,000 acres, and over $250,000,000 are invested in waterworks, with nearly as much more in the appurtenant catchment areas and other lands. The population so supplied approaches 10,000,000, and the annual consumption is about 37,500,000,000 cubic feet. The better managed systems protect the catchment areas by forests and grass; the water is controlled and the storm product used, but there is large waste after the water enters the mains.



NAVIGABLE WATER-WAYS

The heavy lines show the navigable water-ways of the United States, in which the water is three feet deep or over. The length of these is some 18,000 miles

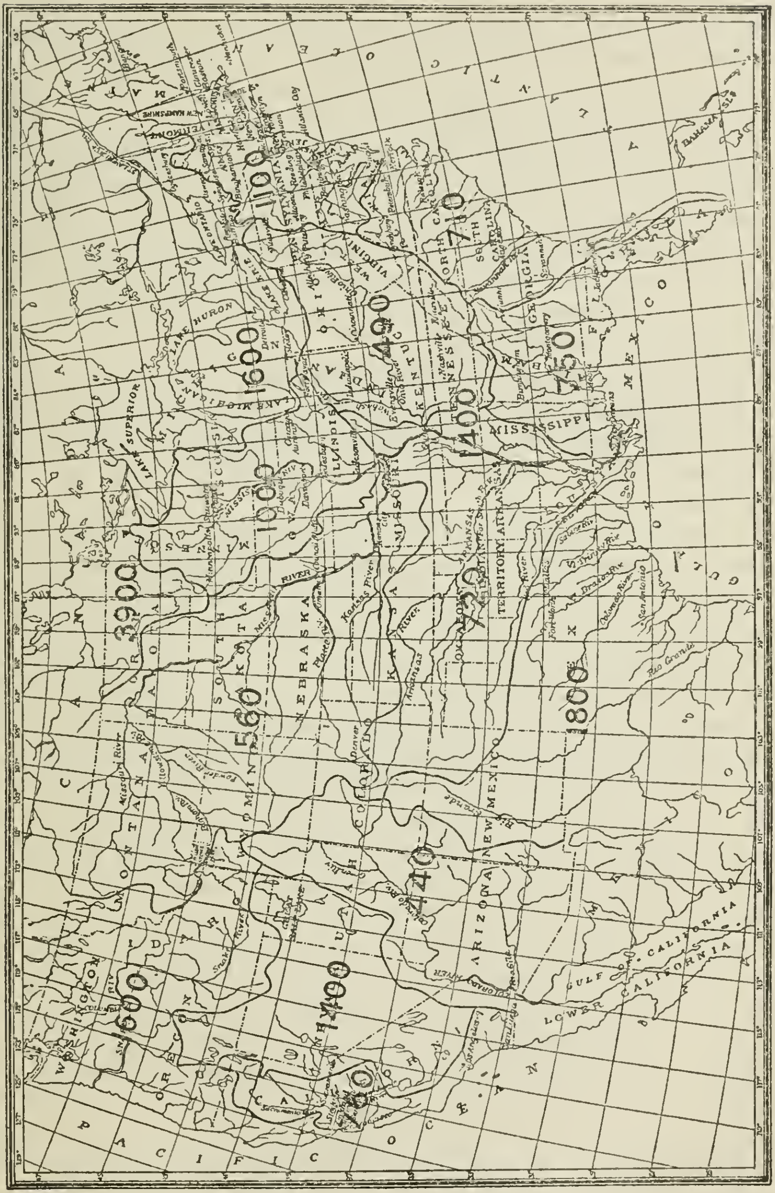
For irrigation it is estimated that there are $200,000,000 invested in dams, ditches, reservoirs, and other works for the partial control of the waters, and that 1,500,000,000,000 cubic feet are annually diverted to irrigable lands, aggregating some 20,000 square miles. Except in some cases through forestry, few catchment areas are controlled, and few reservoirs are large enough to hold the storm waters. The waste in the public and private projects exceeds 60 per cent, while no more than 25 per cent of the water actually available for irrigation of the arid lands is restrained and diverted.

There are in continental United States 287 streams navigated for an aggregate of 26,226 miles, and as much more navigable if improved. There are also 45 canals, aggregating 2,189 miles, besides numerous abandoned canals. Except through forestry in recent years, together with a few reservoirs and canal locks and movable dams, there has been little effort to control headwaters or catchment areas in the interests of navigation, and none of our rivers are navigated to more than a small fraction even of their effective low-water capacity.

The water power now in use is 5,250,000 horse-power; the amount running over government dams and not used is about 1,400,000 horse-power; the amount reasonably available equals or exceeds the entire mechanical power now in use, or enough to operate every mill, drive every spindle, propel every train and boat, and light every city, town, and village in the country. While the utilization of water-power ranks among our most recent and most rapid industrial developments, little effort has been made to control catchment areas or storm waters in any large way for power, though most plants effect local control through reservoirs and other works. Nearly all the freshet and flood water runs to waste, and the low waters which limit the efficiency of power plants are increasing in frequency and duration with the increasing flood run-off.

The practical utility of streams for both navigation and power is measured by the effective low-water stage. The volume carried when the streams rise above this stage is largely wasted and often does serious damage. The direct yearly damage by floods since 1900 has increased steadily from $45,000,000 to over $238,000,000. The indirect loss through depreciation of property is great, while a large loss arises in impeded traffic through navigation and terminal transfers.

The freshets are attended by destructive soil erosion. The soil matter annually carried into lower rivers and harbors or into the sea



RATES OF DENUDATION IN THE UNITED STATES

The figures are the number of years required for one inch of denudation is computed at 783,000,000 tons. Soil wash reduces by 10 or 20 per cent the productivity of upland farms and increases channel cutting and bar building in the rivers. The annual loss to the farms alone is fully $500,000,000, and large losses follow the fouling of the waters and the diminished navigability of the streams.

Through imperfect control of the running waters lowlands are temporarily or permanently flooded. It is estimated that there are in mainland United States about 75,000,000 acres of overflow and swamp lands requiring drainage; that by systematic operation these can be drained at moderate expense, and that they would then be worth two or three times the present value and cost of drainage, and would furnish homes for 10,000,000 people.

It is estimated that the quantity of fresh water stored in lakes and ponds (including the American portion of the Great Lakes) is about 600,000,000,000,000 cubic feet, equivalent to three years' rainfall or eight years' run-off. Some 6,000,000 of our people draw their water supply from lakes.

A large part of that half of the annual rainfall not evaporated lodges temporarily in the soil and earth. It is estimated that the ground water to the depth of 100 feet averages 16⅔ per cent of the earth volume, or over 1,400,000,000,000,000 cubic feet, equivalent to seven years' rainfall or twenty years' run-off. This subsurface reservoir is the essential basis of agriculture and other industries and is the chief natural resource of the country. It sustains forests and all other crops and supplies the perennial springs and streams and wells used by four-fifths of our population and nearly all our domestic animals. Its quantity is diminished by the increased run-off due to deforestation and injudicious farming. Although the volume of the available ground water is subject to control by suitable treatment of the surface, little effort has been made to retain or increase it, and it is probable that fully 10 per cent of this rich resource has been wasted since settlement began. The water of the strata below 100 feet supplies artesian and deep wells, large springs, and thermal and mineral waters. It can be controlled only through the subsurface reservoir.

Of the 35,000,000,000,000 cubic feet of cut-off, the chief share is utilized by natural processes or by agriculture and related industries. On an average the plant tissue of annual growths is three-fourths and of perennial growths three-eighths water; of human and stock food over 80 per cent is water, and in animal tissue the ratio is about the same; and since water is the medium for organic circulation, the plants and animals of the country yearly require an amount many times exceeding their aggregate volume. Even in the more humid sections of the country the productivity of the soil and the possible human population would be materially increased by a greater rainfall, leaving a larger margin for organic and other chemical uses. Except through agriculture and forestry little general effort is made to control the annual cut-off, although some farmers in arid regions claim to double or triple the crop from given soil by supplying water just when needed and withholding it when not required.

Water is like other resources in that its quantity is limited. It differs from such mineral resources as coal and iron, which once used are gone forever, in that the supply is perpetual; and it differs from such resources as soils and forests, which are capable of renewal or improvement, in that it cannot be augmented in quantity, though like all other resources it can be better utilized.

The inventory of our natural resources made by your commission with the vigorous aid of all federal agencies concerned, of many states, and of a great number of associated and individual co-operators, furnishes a safe basis for general conclusions as to what we have, what we use and waste, and what may be the possible saving. But for none of the great resources of the farm, the mine, the forest, and the stream do we yet possess knowledge definite or wide enough to insure methods of use which will best conserve them.

In order to conserve a natural resource, we must know what that resource is by taking stock. We greatly need a more complete inventory of our natural resources; and this cannot be made except through the active co-operation of the states with the nation.

The permanent welfare of the nation demands that its natural resources be conserved by proper use. To this end the states and the nation can do much by legislation and example. By far the greater part of these resources is in private hands. Private ownership of natural resources is a public trust; they should be administered in the interests of the people as a whole. The states and nation should lead rather than follow in the conservative and efficient use of property under their immediate control. But their first duty is to gather and distribute a knowledge of our natural resources and of the means necessary to insure their use and conservation, to impress the body of the people with the great importance of the duty, and to promote the co-operation of all. No agency, state, federal, corporate, or private, can do the work alone.

Finally, the conservation of our resources is an immediate and vital concern. Our welfare depends on conservation. The pressing need is for a general plan under which citizens, states, and nation may unite in an effort to achieve this great end. The lack of co-operation between the states themselves, between the states and the nation, and between the agencies of the national government is a potent cause of the neglect of conservation among the people. An organization through which all agencies—state, national, municipal, associate, and individual—may unite in a common effort to conserve the foundations of our prosperity is indispensable to the welfare and progress of the nation. To that end the immediate creation of a national agency is essential. Many states and associations of citizens have taken action by the appointment of permanent conservation commissions. It remains for the nation to do likewise, in order that the states and the nation, associations and individuals, may join in the accomplishment of this great purpose.

23. THE ECONOMIC POSSIBILITIES OF CONSERVATION[1]

The real heart of the conservation problem presents an issue which taxes the resources of economic theory to the utmost. This issue is the problem of adjusting the conflict between the interest of present and future. In America the possibilities of conservation have been considered largely from the standpoint of natural science, while the economic limitations have been but little appreciated.

It is first necessary to determine the relation between the utilization of natural resources and their exhaustion. If utilization did not result in exhaustion, the problem of conservation, as it was stated above, obviously would not exist. Accordingly, natural resources may be classified as follows:

I. Resources which exist in such abundance that there is no apparent necessity for economy, either in present or future; for instance, water in some localities.
II. Resources which will probably become scarce in the remote future, although so abundant as to have no market value in the present; for instance, building stone and sand in some localities.
III. Resources which have a present scarcity—
  1. Not exhaustible through normal use: water-powers.
  2. Necessarily exhausted through use, and non-restorable after exhaustion: mineral deposits.

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[1] Adapted from L. C. Gray, "The Economic Possibilities of Conservation" in the *Quarterly Journal of Economics*, XXVII, 499–509 (May, 1913).

3. Necessarily exhausted through use, but restorable: forests, fish.
4. Exhaustible in a given locality but restorable through the employment of other resources of a different kind or of similar resources in different locations: agricultural land.

Is private property in natural objects favorable or unfavorable to the realization of the ideals of the conservationist? Whether or not the individual will pursue a policy of exploitation or one of conservation, depends on a number of conditions, the most important of which are the rate of interest, the law of diminishing productivity, and the value of the natural resources under the individual's control.

The influence of the rate of interest may be illustrated by the motives which govern the owner of a coal mine in the utilization of his property. Were it possible to remove all of this content in the present as cheaply as over a period of time, the owner would most certainly do so. This is true because the proceeds from the sale of the product may be put out at interest, whereas the mineral yields no interest so long as it remains unsold. It is assumed, of course, that no changes in the price of the product are anticipated.

The owner is prevented, however, from the immediate appropriation of the entire valuable content because the removal of the product is subject to the law of diminishing productivity. After a certain rate of removal is achieved, an increase in that rate results in a smaller return per unit of expense. By postponing the extraction of this additional coal until some future period, the owner of the mine can remove the entire content at a minimum expense.

The rate of extraction of the coal which will be most profitable to the owner is necessarily a rate between the two extremes which have just been explained. If the interest rate is high, the postponement of removal until a future period becomes less profitable than would be the case under a lower rate of interest. The greater amount of interest which may be secured from the realized product more than balances the loss from diminishing returns through an increase in the rate of present removal. Thus the general effect of a high interest rate, other things being equal, is rapid exploitation; whereas a lower interest rate makes a policy of conservation more profitable to the owner.

The market value of the natural resource influences the rate of utilization in several ways. In the first place, the rise of value increases the amount of land that may be profitably utilized. It becomes profitable to farm new areas, to sink shafts in mineral deposits which it would not have been profitable to mine under the lower level of prices, and to seek lower levels in the old shafts. In short, the result of the increase in value is to increase rapidity of utilization by stimulating the appropriation of resources hitherto not subject to use, thereby intensifying the drain upon the supply of natural resources.

The second result of the increase in value is to encourage a more intensive utilization of the resources formerly employed. Does this mean conservation or more rapid utilization? There has been a widespread belief that an intensive use of land is a conservative use and that high land values will result in a cessation of soil mining. In general, however, a more intensive use implies merely the association of a relatively large amount of labor and capital with a given *surface* of land. A larger amount of labor and capital associated with a given surface may mean a more rapid utilization of the *content* of the land than under more extensive methods. It may mean deeper plowing, more frequent cultivation, larger harvests, more rapid exhaustion.

There are several reasons, however, which justify the view that utilization will tend to be exploitative when land is cheap, and conservative when it is dear. In the first place, conservation frequently requires a present expenditure in order to prevent the waste or deterioration of the residuum of resources not immediately needed. For instance, it may be possible to retard the erosion of the soil by present expenditures in terracing and drainage. The economic problem involved is the balancing of present expenditures against future benefits. The more valuable the natural resource, the more likely is the owner to pursue a policy which will prevent the waste of the land by utilization or otherwise. Moreover the rate of discount on the future plays an influential rôle in this phase of conservation as in others; for the higher the rate, the smaller is the present value of the expected benefits to be balanced against the requisite present expense.

In the second place, high value of a natural object is favorable to conservation because a tendency results for other less valuable resources to be substituted in place of it.

The effect, therefore, of the rise in the value of natural resources is twofold: first, to increase the quantity of resources that are brought under utilization; and second to create motives for economizing those already in use. In the one direction the influence is favorable to conservation; in the other direction, unfavorable.

If we widen our point of view and consider utilization and conservation from the standpoint of society, the explanation of the paradox just noted will be seen to arise from the conditions which determine market value.

IV. HUMAN BEINGS AS ECONOMIC FACTORS

24. SOME DEFINITIONS OF LABOR

"Labor is a wealth-creating effort. . . . ."—J. B. Clark, *Essentials of Economic Theory*, chap. i.

"The term labor . . . . includes all human exertion. . . . ." —Henry George, *Progress and Poverty*, Book I, chap. ii.

"Labor is any human effort having an aim or purpose outside of itself."—F. A. Fetter, *The Principles of Economics*, chap. xx.

"Labor is the application of human faculties to the production of wealth."—A. S. Johnson, *Introduction to Economics*, chap. x.

"Labor is the voluntary exertion of bodily or mental faculties for the purpose of production."—N. W. Senior, *Political Economy*.

"We may define labor as any exertion of mind or body undergone partly or wholly with a view to some good other than the pleasure derived directly from the work."—Alfred Marshall, *Principles of Economics*, Book II, chap. iii.

"Labor may be properly defined any sort of action or operation, whether performed by man, the lower animals, machinery, or natural agents, that tends to bring about any desirable result."—J. R. M'Culloch, Supplemental Note I to Smith's *Wealth of Nations*.

"Labor. 1. Exertion of the faculties of the body or mind, especially when painful or compulsory; bodily or mental toil.

"2. Physical exertion directed to the supply of the material wants of the community; the specific service rendered to production by the laborer and artisan."—Murray, *New English Dictionary*.

"Labor is . . . . a process in which both man and Nature participate, and in which man of his own accord starts, regulates, and controls the material reactions between himself and Nature. He opposes himself to Nature as one of her own forces, setting in motion arms and legs, head and hands, the natural forces of his body, in order to appropriate Nature's productions in a form adapted to his own wants."—Karl Marx, *Capital* (Engel's translation , Vol. I, chap. vii.

"Labor is either bodily or mental; or, to express the distinction more comprehensively, either muscular or nervous; and it is necessary to include in the idea, not solely the exertion itself, but all feelings of a disagreeable kind, all bodily inconvenience or mental annoyance, connected with the employment of one's thoughts, or muscles, or both, in a particular occupation. . . . .

"Labor . . . . in the physical world, is always and solely employed in setting objects in motion; the properties of matter, the laws of nature, do the rest."—John Stuart Mill, *Principles of Political Economy*, Book I, chap. i.

"Labor is the contest of the life of man with an opposite;—the term 'life' including his intellect, soul and physical power, contending with question, difficulty, trial, or material force. . . . .

". . . . it is the quantity of . . . . loss, or failure of human life, caused by any effort. It is usually confused with effort itself, or the application of power . . . . but there is much effort which is merely a mode of recreation, or of pleasure. The most beautiful actions of the human body, and the highest results of the human intelligence, are conditions, or achievements, of quite unlaborious,—nay, of recreative,—effort. But labor is the *suffering* in effort. . . . ." John Ruskin, *Unto This Last*, §70, and *Munera Pulveris*, §59.

25. THE RELATION OF LABOR TO NATURAL AGENTS IN PRODUCTION[1]

Cases in which a certain amount of labor has been dispensed with, its work being devolved upon some natural agent, are apt to suggest an erroneous notion of the comparative functions of labor and natural powers; as if the co-operation of those powers with human industry were limited to the cases in which they are made to perform what would otherwise be done by labor; as if, in the case of things made (as the phrase is) by hand, Nature only furnished passive materials. This is an illusion. The powers of Nature are as actively operative in the one case as in the other. A workman takes a stalk of the flax or hemp plant, splits it into separate fibers, twines together several of these fibers with his fingers, aided by a simple instrument called a spindle; having thus formed a thread, he lays many such threads side by side, and places other similar threads directly across them, so that each passes alternately over and under those which are at right angles to it; this part of the process being facilitated by an instrument called a shuttle. He has now produced a web of cloth, either linen or sack-cloth, according to the material. He is said to have done this by hand, no natural force being supposed to have acted in concert with him. But by what force is each step of this operation rendered possible, and the web, when produced, held together? By the tenacity, or force of cohesion, of the fibers: which is one of the forces of Nature, and which we can measure exactly against other mechanical forces, and ascertain how much of any of them it suffices to neutralize or counterbalance.

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[1] From John Stuart Mill, *Principles of Political Economy*, Book I, chap. i, § 2.

If we examine any other case of what is called the action of man upon Nature, we shall find in like manner that the powers of Nature, or in other words the properties of matter, do all the work, when once objects are put into the right position. This one operation, of putting things into fit places for being acted upon by their own internal forces, and by those residing in other natural objects, is all that man does, or can do, with matter. He only moves one thing to or from another. He moves a seed into the ground; and the natural forces of vegetation produce in succession a root, a stem, leaves, flowers, and fruit. He moves an axe through a tree, and it falls by the natural force of gravitation; he moves a saw through it, in a particular manner, and the physical properties by which a softer substance give way before a harder, make it separate into planks, which he arranges in certain positions, with nails driven through them, or adhesive matter between them, and produces a table, or a house. He moves a spark to fuel, and it ignites, and by the force generated in combustion it cooks the food, melts or softens the iron, converts into beer or sugar the malt or cane-juice, which he has previously moved to the spot. He has no other means of acting on matter than by moving it. Motion, and resistance to motion, are the only things which his muscles are constructed for. By muscular contraction he can create a pressure on an outward object, which, if sufficiently powerful, will set it in motion, or if it be already moving, will check or modify or altogether arrest its motion, and he can do no more. But this is enough to have given all the command which mankind have acquired over natural forces immeasurably more powerful than themselves; a command which, great as it is already, is without doubt destined to become indefinitely greater. He exerts this power either by availing himself of natural forces in existence, or by arranging objects in those mixtures and combinations by which natural forces are generated; as when by putting a lighted match to fuel, and water into a boiler over it, he generates the expansive force of steam, a power which has been made so largely available for the attainment of human purposes.

Labor, then, in the physical world, is always and solely employed in putting objects in motion; the properties of matter, the laws of nature, do the rest. The skill and ingenuity of human beings are chiefly exercised in discovering movements, practicable by their powers, and capable of bringing about the effects which they desire.

26. THE INCREASE OF POPULATION IN THE UNITED STATES[1]

Under normal conditions, the rate of increase of a body of population slowly decreases. Other things being equal, as the density of population increases and as the difficulty of breadwinning becomes greater with diminished opportunity, natural increase and immigration decrease. The rate of increase may be, and frequently has been, affected by disturbing factors, causing it to increase temporarily or to decrease more rapidly than normal. As an illustration, the population, increases in numbers, and rates of increase in the United States by decades from 1790 to 1900 are given in the following table:

Year	Population	Increase	Rate of Increase
			Percentage
1790	3,929,000	....	..
1800	5,308,000	1,379,000	35
1810	7,240,000	1,931,000	36
1820	9,638,000	2,399,000	33
1830	12,866,000	3,228,000	33
1840	17,069,000	4,203,000	33
1850	23,192,000	6,122,000	36
1860	31,443,000	8,251,000	36
1870	38,558,000	7,115,000	23
1880	50,156,000	11,597,000	30
1890	62,622,000	12,466,000	25
1900	75,569,000	12,946,000	21

From 1780 to 1840 the population was little disturbed and immigration was small, and the rate of increase dropped from 35 or 36 per cent to 33 per cent. Between 1840 and 1850 there was a great wave of immigration, which increased in the succeeding decade and raised the rate of increase to 36 per cent. Then came the blighting effects of the Civil War; deaths from casualty and diseases and the reduction of births (aided to an uncertain extent by omission in the census of 1870) reduced the rate in that decade to 23 per cent. Between 1870 and 1880 the country began to recover from the effects of the war, and the rate of population increased to 30 per cent. The succeeding decade witnessed a drop of 5 per cent, and the following one of 4 per cent. Thus in 110 years the rate of increase of population has been reduced from 35 to 21 per cent. If normal conditions prevail in the future, it is certain that the rate of increase will continue to diminish until the rate reaches that of the densely populated countries of western Europe—about 10 per cent increase per decade. It will be noted that in the table the numerical increase has been steady excepting for the period between 1860 and 1870.

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[1] Adapted from Henry Gannett's "Estimates of Future Population," in the *Report of the National Conservation Commission* (1909), II, 7–8.

A great variety of population conditions exists in the United States. There are communities where increase is supplied wholly by immigration; others receive no immigration, but are dependent upon the excess of births over deaths; there are regions where commerce and manufacturing cause dense population; thickly populated farming regions now passing into manufacturing communities; prosperous farming regions; sparsely peopled pastoral lands; and desert wastes with few people. All have different rates of increase, and the figures discussed represent the total of all the different conditions.

27. THE MALTHUSIAN THEORY OF POPULATION

The Malthusian theory of population was formulated in *An Essay on the Principle of Population*, written in 1798 by Thomas Robert Malthus (1766–1834), a young Englishman whose scientific interests had turned to the social questions of his time. The *Essay* was at first an anonymous argument intended to prove that the evils of excessive human increase constituted a fatal obstacle in the way of certain visionary schemes of social equality which had recently been proposed. In later editions, beginning with 1803, the argument was slightly modified and was supported by historical and contemporary evidence. The substance of the developed argument may be stated somewhat as follows.

All living creatures seem to be characterized by a capacity for greater increase in numbers than the external conditions of life permit. In the case of man, if there were no limits upon reproduction except the physiological limits to procreation and child-bearing, multiplication would continue at a rapid and approximately constant rate. Abstractly considered, population may be said to increase naturally in a geometrical ratio, and to be capable of doubling itself as often as once in every twenty-five years.

In comparison with this *potential* increase of population, the *actual* increase of the means of subsistence is slow. Land is limited. Methods of cultivation improve, but not so much as to double and redouble the products of the soil. "It may be fairly pronounced, therefore, that, considering the present average state of the earth, the means of subsistence, under circumstances the most favorable to human industry, could not possibly be made to increase faster than in an arithmetical ratio."

The inherent tendency of population is thus to increase faster than the means of its support. But actual increase beyond the food supply is obviously impossible. That is, the abstract tendency of increase of population must be arrested by certain *checks*. "These checks to population, which are constantly operating with more or less force in every society, and keep down the number to the level of the means of subsistence, may be classed under two general heads—the preventive, and the positive checks." The preventive checks comprise various influences which diminish the possible number of births; and include, in particular, *moral restraint*, or the postponement of marriage, from motives of economic prudence, "with a conduct strictly moral during the period of this restraint." The positive checks "include every cause, whether arising from vice or misery, which in any degree contributes to shorten the natural duration of human life." They are the forces acting to reduce already redundant numbers, and range in form from outright starvation to the least of the various hardships in which destruction of life may be disguised. The checks are thus "all resolvable into moral restraint, vice, and misery," and since moral restraint may be regarded as a counsel of perfection, the pressure of population is a constant source of want and wretchedness.

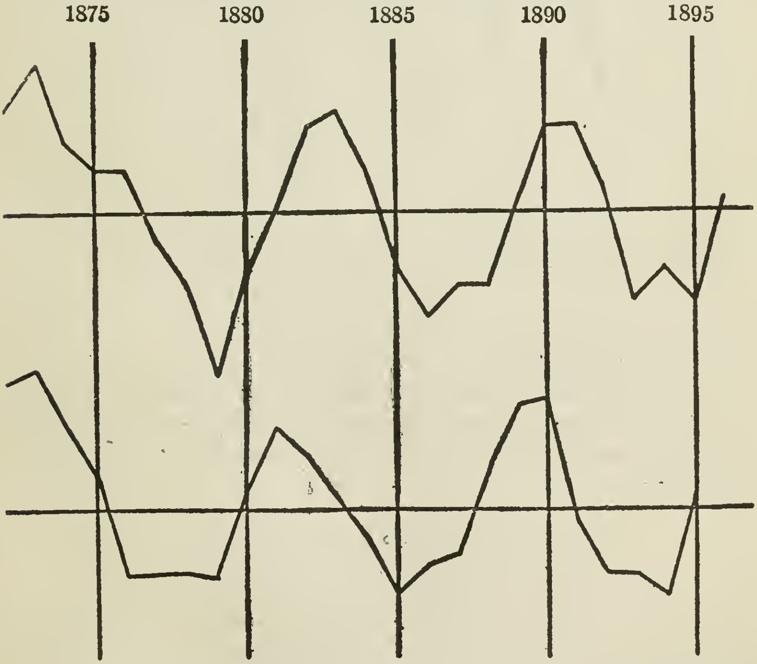
The somber and rather pessimistic tone of the Malthusian theory was in large measure due to the background of economic conditions prevailing at the time when Malthus wrote. The social shock of the industrial revolution in England and the burden of foreign war had aggravated the evils of an antiquated system of poor relief which seemed to many a cause rather than a corrective of destitution and degraded living. Not surprisingly, poverty arising from overpopulation seemed to Malthus an ever-threatening evil. If today the gloomy implications of Malthusianism are taken less seriously, the explanation is to be found chiefly in two facts: (1) the nineteenth century, with its progress in manufacturing methods and in transportation, has brought an unexpected increase in our economic resources; and (2) new checks to population have become operative with surprising effect in response to subtle but powerful motives which may be traced back to the increasing exactions and opportunities of life in modern society.

28. ECONOMIC INFLUENCES ON THE MARRIAGE-RATE[1]

The accompanying diagrams are drawn to show the relation between the marriage-rate, in England, and the extent of bank clearings and of unemployment, respectively. The curves have been

FIG. I

COMPARATIVE FLUCTUATIONS OF THE MARRIAGE-RATE (UPPER CURVE) AND PER CAPITA BANK CLEARINGS (LOWER CURVE) IN ENGLAND, 1872–96



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[1] The diagrams are adapted from G. U. Yule, "Changes in the Marriage- and Birth-Rates in England and Wales During the Past Half Century," *Journal of the Royal Statistical Society*, LXIX, 95–96 (March, 1906).

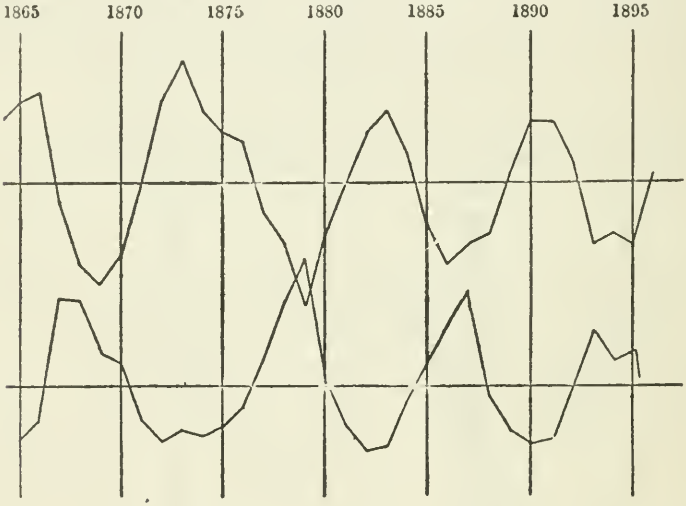
The data plotted in both diagrams are differences from periodic means—9-year means in Fig. I. and 11-year means in Fig. II.

plotted in such a way as to eliminate the effect of long-run changes in the phenomena in question: they represent in every case simply the annual variations from the general trend which is indicated, arbitrarily, by the horizontal line through each curve.

In Fig. I the scales are such that the maximum fluctuations represent a change of about 1 in the marriage-rate (which during this period averaged roughly 16 per thousand of population) and about £50 bank clearings per capita. In Fig. II unemployment is indicated by calculated values of an "index-number," which makes it impracticable to state in simple terms the absolute amount of unemployment represented.

Fig. II

Comparative Fluctuations of the Marriage-Rate (Upper Curve) and the Amount of Unemployment (Lower Curve) in England, 1864–96



29. THE QUALITY OF POPULATION

(*a*) NON-SURVIVAL OF THE FITTEST[1]

My thesis is this: that the indisputable effect of the state of social progress and culture we have reached, of our high civilization in its present stage and actual form, is to *counteract and suspend* the operation of that righteous and salutary law of "natural selection" in virtue of which the best specimens of the race—the strongest, the finest, the worthiest—are those which survive, multiply, become paramount, and take precedence; succeed and triumph in the struggle for existence, become the especial progenitors of future generations, continue the species, and propagate an ever improving and perfecting type of humanity.

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[1] Adapted from W. R. Greg, *Enigmas of Life*, chap. iii. Trübner & Co., 1872. The substance of the passage originally appeared in *Fraser's Magazine* (London), September, 1868.

The principle of the "Survival of the Fittest" does not appear to fail in the case of *races* of men. Here the abler, the stronger, the more advanced, the finer, in short, are still the favored ones, succeed in the competition. The principle of "natural selection" therefore—of the superior and fitter races of mankind trampling out and replacing the poorer races, in virtue of their superior fitness—would seem to hold good universally.

So probably it does also, and always has done, in the case of *nations;* and the apparent exceptions to the rule may be due only to our erroneous estimate of the true elements of superiority.

But when we come to the case of individuals in a people, or classes in a community—the phase of the question which has far the most practical and immediate interest for ourselves—the principle would appear to fail, and the law is no longer supreme. Civilization, with its social, moral, and material complications, has introduced a disturbing and conflicting element. It is not now, as Mr. Wallace depicts, that intellectual has been substituted for physical superiority, but that artificial and conventional have taken the place of natural advantages as the ruling and deciding force. It is no longer the strongest, the healthiest, the most perfectly organized; it is not men of the finest *physique*, the largest brain, the most developed intelligence, the best *morale*, that are "favored" and successful "in the struggle for existence"—that survive, that rise to the surface, that "natural selection" makes the parents of future generations, the continuators of a picked and perfected race. It is still "the most favored," no doubt, in some sense, who bear away the palm, but the indispensable favor is too often that of fortune, not of nature. The various influences of our social system combine to traverse the righteous and salutary law which God ordained for the preservation of a worthy and improving humanity; and the "varieties" of man that endure and multiply their likenesses, and mold the features of the coming times, are not the soundest constitutions that can be found among us, nor the most subtle and resourceful minds, nor the most amiable or self-denying tempers, nor the most sagacious judgments, nor even the most imperious and persistent wills, but often the precise reverse—often those emasculated by luxury and those damaged by want, those rendered reckless by squalid poverty, and those whose physical and mental energies have been sapped, and whose characters have been grievously impaired, by long indulgence and forestalled desires.

The two great instruments and achievements of civilization are respect for life and respect for property. In proportion as both are secure, as life is prolonged and as wealth is accumulated, and as the poor and weak are cared for, so nations rise—or consider that they have risen. Among wild animals the sick and maimed are slain; among savages they succumb and die or are suppressed; among us they are cared for, kept alive, enabled to marry and multiply. In uncivilized tribes, the ineffective and incapable, the weak in body or in mind, are unable to provide themselves food; they fall behind in the chase or in the march; they fall out, therefore, in the race of life. With us, sustenance and shelter are provided for them, and they survive. We pride ourselves—and justly—on the increased length of life which has been effected by our science and our humanity. But we forget that this higher average of *life* may be compatible with, and may in a measure result from, a lower average of *health.* We have kept alive those who, in a more natural and less advanced state, would have died—and who, looking at the physical perfection of the race alone, had better have been left to die. Among savages, the vigorous and sound alone survive; among us, the diseased and enfeebled survive as well; but is either the physique or the intelligence of cultivated man the gainer by the change? In a wild state, by the law of natural selection, only or chiefly, the sounder and stronger specimens were allowed to continue their species; with us, thousands with tainted constitutions, frames weakened by malady or waste, brains bearing subtle and hereditary mischief in their recesses, are suffered to transmit their terrible inheritance of evil to other generations, and to spread it through a whole community.

Security of property, security for its transmission as well as for its enjoyment, is one of our chief boasts. Thousands upon thousands who never could themselves have acquired property by industry, or conquered it by courage, or kept it by strength or ingenuity, and who are utterly incompetent to use it well, are yet enabled by law to inherit and retain it. They are born to wealth, they revel in wealth, though destitute of all the qualities by which wealth is won, or its possession made a blessing to the community. In a natural state of society they would have been pushed out of existence, stripped of their inherited and ill-used possessions, jostled aside in the struggle and the race, and left by the wayside to die. In civilized communities they are protected, fostered, flattered, married, and empowered to hand down their vapid incapacities to numerous offspring, whom perhaps they can leave wealthy too. In old and highly advanced nations, the classes who wield power and affluence and social supremacy as a consequence of the security of property, do not as a rule consist—nay, may consist in a very small measure—of individuals who have won, or could have won, those influences for themselves—of natural "kings of men"; the élite lots in life do not fall to the élite of the race or the community. Those possessions and that position, which in more simply organized tribes would be an indication and a proof either of strength, of intelligence, or of some happy adaptation to surrounding exigencies, now in our complicated world indicate nothing—at least in five cases out of six—but merit or energy or luck in some ancestor, perhaps inconceivably remote, who has bequeathed his rank and property to his successors, but without the qualities which won them and warranted them. Yet this property and rank still enable their possibly unworthy and incapable inheritors to take precedence over others in many of the walks of life, to carry off the most desirable brides from less favored though far nobler rivals, and (what is our present point) to make those brides the mothers of a degenerating, instead of an ever improving race.

But even this by no means presents the whole strength of the case. Not only does civilization, as it exists among us, enable rank and wealth, however diseased, enfeebled, or unintelligent, to become the continuators of the species in preference to larger brains, stronger frames, and sounder constitutions; but that very rank and wealth, thus inherited without effort and in absolute security, often tend to produce enervated and unintelligent offspring. To be born in the purple is not the right introduction to healthy energy; to be surrounded from the cradle with all temptations and facilities to self-indulgence is not the best safeguard against those indulgences which weaken the intellect and exhaust the frame. No doubt *noblesse oblige* and riches can buy the highest education—always excepting that education by surrounding circumstances which is really the only one that tells very effectually on the youthful plant. No doubt, too, there are splendid and numerous exceptions—instances in which rank is used to mold its heir to its duties, and in which wealth is used to purchase and achieve all that makes life noble and beneficent. But we have only to look around us, and a little below the surface, and then ask ourselves whether, as a rule, the owners of rank and wealth—still more the owners of wealth without rank—are those from whose paternity we should have most right to anticipate a healthy, a noble, an energetic, or a truly intellectual offspring—a race fitted to control and guide themselves as well as others, to subdue the earth as well as to replenish it, to govern, to civilize, to illustrate, to carry forward, the future destinies of man?

And if it is not from the highest and most opulent that we can expect this desiderated posterity, assuredly it is not from the lowest and most indigent. The *physique* and the *morale* of both the extreme classes are imperfect and impaired. The *physique* of the rich is injured by indulgence and excess—that of the poor by privation and want. The *morale* of the former has never been duly called forth by the necessity for exertion and self-denial; that of the latter has never been adequately cultivated by training and instruction. The intellects of both have been exposed to opposite disadvantages. The organizations of neither class are the best in the community; the constitutions of neither are the soundest or most untainted. Yet these two classes are precisely those which are, or are likely to be, preponderatingly, the fathers of the coming generation. Both marry as early as they please and have as many children as they please—the rich because it is in their power, the poor because they have no motive for abstinence: and scanty food and hard circumstances do not oppose but rather encourage procreation. Malthus' "prudential check" rarely operates upon the lowest classes; the poorer they are, usually, the faster do they multiply; certainly the more reckless they are in reference to multiplication. It is the middle classes, those who form the energetic, reliable, improving element of the population, those who wish to rise and do not choose to sink, those, in a word, who constitute the true strength and wealth and dignity of nations—it is these who abstain from marriage or postpone it. Thus the imprudent, the desperate, those whose standard is low, those who have no hope, no ambition, no self-denial, on the one side, and the pampered favorites of fortune on the other, take precedence in the race of fatherhood, to the disadvantage or the exclusion of the prudent, the resolute, the striving, and the self-restrained. The very men whom a philosophic statesman, or a guide of some superior nature, would select as most qualified and deserving to continue the race are precisely those who do so in the scantiest measure. Those who have no need for exertion, and those who have no opportunities for culture, those whose frames are damaged by indulgence, and those whose frames are weakened by privation, breed *ad libitum:* while those whose minds and bodies have been hardened, strengthened, and purified by temperance and toil, are elbowed quietly aside in the unequal press. Surely the "selection" is no longer "natural." The careless, squalid, unaspiring Irishman, fed on potatoes, living in a pig-stye, doting on a superstition, multiplies like rabbits or ephemera; the frugal, fore-seeing, self-respecting, ambitious Scot, stern in his morality, spiritual in his faith, sagacious and disciplined in his intelligence, passes his best years in struggle and in celibacy, marries late, and leaves few behind him. Given a land originally peopled by a thousand Saxons and a thousand Celts, and in a dozen generations, five-sixths of the population would be Celts, but five-sixths of the property, the power, and the intellect would belong to the one-sixth of Saxons that remained. In the eternal "struggle for existence," it would be the inferior and *less* favored race that had prevailed—and prevailed by virtue not of its qualities but of its faults, by reason not of its stronger vitality but of its weaker reticence and its narrower brain.

Of course it will be urged that the principle of natural selection fails thus utterly because our civilization is imperfect and misdirected; because our laws are insufficient; because our social arrangements are unwise; because our moral sense is languid or unenlightened. No doubt, if our legislators and rulers were quite sagacious and quite stern, our people in all ranks quite wise and good, the beneficent tendencies of nature would continue to operate uncounteracted. No constitutions would be impaired by insufficient nutriment and none by unhealthy excess. No classes would be so undeveloped either in mind or muscle as to be unfitted for procreating sound and vigorous offspring. The sick, the tainted, and the maimed would be too sensible and too unselfish to dream of marrying and handing down to their children the curse of diseased or feeble frames; or if they did not thus control themselves, the state would exercise a salutary but unrelenting paternal despotism, and supply the deficiency by vigilant and timely prohibition. A republic is *conceivable* in which paupers should be forbidden to propagate; in which all candidates for the proud and solemn privilege of continuing an untainted and perfecting race should be subjected to a pass or a competitive examination, and those only be suffered to transmit their names and families to future generations who had a pure, vigorous, and well-developed constitution to transmit; so that paternity should be the right and function exclusively of the élite of the nation, and humanity be thus enabled to march on securely and without drawback to its ultimate possibilities of progress. Every damaged or inferior temperament might be eliminated, and every special and superior one be selected and enthroned, till the human race, both in its manhood and its womanhood, became one glorious fellowship of saints, sages, and athletes; till we were all Blondins, all Shakespeares, Pericles', Socrates', Columbuses, and Fénelons. But no nation—in modern times at least—has ever yet approached or aimed at this ideal; no such wisdom or virtue has ever been found except in isolated individual instances; no government and no statesman has ever yet dared thus to supplement the inadequacy of personal patriotism by laws so sapiently despotic. The faces of the leading peoples of the existing world are not even set in this direction—at present notably the reverse. The more marked tendencies of the age are three; and all three run counter to the operation of the wholesome law of "natural selection." We are learning to insist more and more on the freedom of the individual will, the right of everyone to judge and act for himself. We are growing daily more foolishly and criminally lenient to every natural propensity, less and less inclined to resent, or control, or punish its indulgence. We absolutely refuse to let the poor, the incapable, the lazy, or the diseased die; we enable or allow them, if we do not actually encourage them, to propagate their incapacity, poverty, and constitutional disorders. And, lastly, democracy is every year advancing in power, and claiming the supreme right to govern and to guide; and democracy means the management and control of social arrangements by the least educated classes—by those least trained to foresee or measure consequences, least acquainted with the fearfully rigid laws of hereditary transmission, least habituated to repress desires, or to forego immediate enjoyment for future and remote good.

(*b*) EUGENICS

The quality of the population has only within a few years begun to command from economists and other students of social problems the attention which so important a topic deserves. The influence of Malthus, at the beginning of the last century, committed the economic opinion of that period to the already prevalent view that questions of wise public policy in regard to population were essentially questions of mere numbers—the number of men who could be compelled to fight, labor, or pay taxes, and the numerical proportion between existing food-supply and the human beings to be fed. Almost no one then recognized the menace of the unequal increase of social and economic classes unequally endowed with the mental and physical characteristics which make for success. Indeed, the inequalities of innate human capacity were little appreciated until Darwin's *Origin of Species*, by pointing out the rôle of inherited variations throughout the animal world, suggested how far-reaching might be the effect of hereditary defects and abilities in determining the careers of individual men, and even the whole course of civilization. This suggestion presently led the late Sir Francis Galton to publish—tentatively, at first, in 1865, and later, in 1869, in his classic *Hereditary Genius*—an impressive array of evidence bearing on the inheritance of human talents and aptitudes, and an epoch-making argument in favor of selective improvement of the human breed as a promising means of increasing human welfare. Subsequently Galton adduced new proofs of hereditary ability; won new followers to his project of race-betterment, and raised the program of investigations which he had begun to the level of an incipient science, bearing the name, "Eugenics."

"Eugenics," in the words of Galton, "is the study of agencies under social control that may improve or impair the racial qualities of future generations either physically or mentally." Primarily it is the study of human heredity and of social influences which act, through heredity, for racial degeneracy or racial improvement.

The study of human heredity has made great advances within the past decade. The investigations of Professor Karl Pearson and his associates, conducted according to statistical methods which Galton had first outlined, led to the important conclusions that heredity is as strong in man as in other animals, and that our mental qualities are as much controlled by heredity as our more obvious physical traits. "All human qualities," according to Professor Pearson, "are inherited in a marked and probably equal degree." As for the comparative effects of heredity and environment, he believes it "quite safe to say that the influence of environment is not one-fifth that of heredity, and quite possibly not one-tenth of it."

This conviction of the superior potency of inheritance is borne out by the results of other researches, which not only have afforded substantial confirmation of many of Pearson's generalizations, but have also brought out specific evidence of the way in which heredity transmits such characteristics as feeble-mindedness, deaf-mutism, forms of insanity, color-blindness, and a long list of other defects. In many cases it is now possible to predict with no little accuracy the sorts of disability which marriages of unsound stocks are likely to bring forth. Similarly, the reappearance of specific aptitudes in gifted families may be foretold, though, because of the comparatively complex and indefinite nature of such affirmative talents, the outcome is here less certain.

Practical attempts to apply existing knowledge of heredity in the betterment of racial quality fall under two heads: positive, or constructive eugenics, and negative, or restrictive eugenics. On the one hand we may attempt to develop a better human type; on the other, we may content ourselves with eliminating the worst lapses from the normal type which now exists. Whichever program is adopted, applied eugenics must work mainly through the force which eugenic teaching can bring to bear on marriage selection. The course of either procedure is therefore likely to be obstructed by ignorance, inertia, prejudice, and the reluctance, desirable or undesirable, which is aroused by any attempt to transfer marriage and parenthood from the sway of the emotions to the domain of reason. But apart from this general difficulty, positive and negative eugenics have their special and respective limitations. Positive eugenics is particularly uncertain. Even if the powers of heredity were completely understood and entirely amenable to our control, we should lack adequate understanding of the most desirable human type to create. We cannot assume that abilities which now bring exceptional advantages to exceptional individuals would offer equal advantages to all if possession of these abilities became universal. Negative eugenics, indirectly, is beset by the same uncertainty. More immediately, it involves restraint which, if practiced at all, would probably be practiced more vigorously by the more thoughtful members of the community, with the result of still further aggravating the disproportion between the slow increase of the intellectual classes and the teeming multiplication of the ignorant and improvident. On the whole, however, negative eugenics seems thus far the more hopeful. Within limits, and in cases where the action of heredity is highly definite, such restriction of non-eugenic marriages, by social compulsion or from individual sense of duty, holds out the prospect of a real reduction of human suffering. To this end, therefore, the advocates of eugenics, in growing numbers, are working. How far their efforts have a scientific justification is yet to be proven. At least they have enlisted in their support the altruism which offers a present self-sacrifice for the welfare of posterity, and the half-mystical veneration that an age of evolutionary ideals feels for life and the continuance of life, as the physical process through which mankind works upward.

30. THE COST TO SOCIETY OF A FAMILY OF DEGENERATES[1]

Passing from the actual record, I submit an estimate of the damage of the family, based on what is known of those whose lives have been learned. The total number of persons included in the foregoing statement reach 709; besides these, 125 additional names have been gathered since the text of this essay was prepared, whose general character is similar. If all the collateral lines which have not been traced could be added to the 709 here tabulated, the aggregate would reach at least 1,200 persons, living and dead. Now, out of 700 persons we have 180 who have either been to the poor-house or received outdoor relief to the extent of 800 years. Allowing that the best members of the family have emigrated, it would be a low estimate to say that 80 of the additional 500 are, or have been, dependents, adding 350 years to the relief, making an aggregate of 280 persons under pauper training, receiving 1,150 years of public charity. Great as this is, it is not all. In a former portion of this report, it was stated the pauper records cover 255 years, of which only 64 could be consulted, the difficulties of getting the remaining 191 years being, in most cases, insuperable. Allowing that these 191 years would yield as many years of relief as the 64 which have actually been searched, we should have an aggregate of 2,300 years of out-door relief. Allowing 150 years of alms-house life at $100 a year, the sum expended equals $15,000, and for 2,150 years of out-door relief, at the moderate rate of $15 a year, $32,250, making an aggregate expenditure of $47,250 in 75 years for this single family, 52 per cent of whose women are harlots in some degree. Making a like computation for the other items of the schedule, allowing for all contingencies a financial estimate may be summed up as follows:

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[1] From R. L. Dugdale, *The Jukes*, pp. 67–70. New edition, G. P. Putnam's Sons, 1910.

		Cost
Total number of persons	1,200	
Number of pauperized adults	280	
Cost of alms-house relief		$15,000.00
Cost of out-door relief		32,250.00
Number of criminals and offenders	140	
Years of imprisonment	140	
Cost of maintenance, at $200 a year		28,000.00
Number of arrests and trials	250	
Cost of arrests and trials, $100 each		25,000.00
Number of habitual thieves, convicted and unconvicted	60	
Number of years of depredation, at 12 years each	720	
Cost of depredation, $120 a year		86,400.00
Number of lives sacrificed by murder	7	
Value, at $1,200 each		8,400.00
Number of common prostitutes	50	
Average number of years of debauch	15	
Total number of years of debauch	750	
Cost of maintaining each per year	$300.00	
Cost of maintenance		225,000.00
Number of women specifically diseased	40	
Average number of men each woman contaminates with permanent disease	10	
Total number of men contaminated	400	
Number of wives contaminated by above men	40	
Total number of persons contaminated	440	
Cost of drugs and medical treatment during rest of life, at $200 each		88,000.00
Average loss of wages caused by disease during rest of life, in years	3	
Total years of wages lost by 400 men	1,200	
Loss, at $500 a year		600,000.00
Average number of years withdrawn from productive industry by each courtesan	10	
Total number of years lost by 50 courtesans	500	
Value estimated at $125 a year		62,500.00
Aggregate curtailment of life of 490 adults, equivalent to 50 mature individuals	50	
Cash cost, each life at $1,200		60,000.00
Aggregate of children who died prematurely	300	
Average years of life of each child	2	
Cash cost, each child at $50		15,000.00
Number of prosecutions in bastardy	30	
Average cost of each case, $100		3,000.00
Cost of property destroyed, blackmail, brawls[1]		20,000.00
Average capital employed in houses, stock, furniture, etc., for brothels		6,000.00
Compound interest for 26 years at 6 per cent		18,000.00
Charity distributed by church		10,000.00
Charity obtained by begging		5,450.00
Total		$1,308,000.00

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[1] One house with furniture worth $1,100 was burned by a mob.

Over a million and a quarter dollars of loss in 75 years, caused by a single family 1,200 strong, without reckoning the cash paid for whiskey, or taking into account the entailment of pauperism and crime of the survivors in succeeding generations, and the incurable disease, idiocy and insanity growing out of this debauchery, and reaching further than we can calculate. It is getting to be time to ask, do our courts, our laws, our alms-houses, and our jails deal with the question presented?

31. THE CONSERVATION OF HUMAN ENERGY[1]

I. THE LENGTHENING OF LIFE

There is no doubt that it is possible to prolong life. Making every allowance for inadequacies of statistics, we have strong reason to believe that life is twice as long as three or four centuries ago, and modern records show that it is today increasing more rapidly than ever. The rate at which this lengthening proceeds per century is shown in the following table:

Rate of Lengthening Life (in Years, Per Century)

Country	Periods	Males	Females
England	1838–54 to 1871–81, or 30 years	5	9
England	1871–81 to 1891–1900, or 20 years	14	16
France	1817–31 to 1898–1903, or 76 years	10	11
Prussia	1867–77 to 1891–1900, or 23 years	25	29
Denmark	1835–44 to 1895–1900, or 57 years	13	15
Sweden	1816–40 to 1891–1900, or 67 years	17	15
United States:			
Massachusetts	1789 to 1855, or 66 years	7	
Massachusetts	1855 to 1893–97, or 40 years	14	
India	1881 to 1901, or 20 years	0	

From this table we observe:

First. That the rate of progress is extremely variable in different countries. It is, perhaps, no accident that the maximum rate obtains in Prussia, which is probably the most progressive country in the discovery and application of scientific medicine. If progress continues for a century at merely the present rate, human life in Prussia will be twenty-five to twenty-nine years longer than at present. The average rate of improvement for all the countries, excepting India, is about fifteen years per century.

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[1] Adapted from Irving Fisher's report on "National Vitality, Its Wastes and Conservation," in the *Report of the National Conservation Commission* (1909), III, 724–31, 655–69, 739–42, 748–51.

Second. It is noticeable that in practically all cases the improvement is more among females than males. This is one expression of the progress which womankind is now making in all lands.

Third. This table, as well as the estimate of Professor Finkelnburg, shows that not only is the average duration of human life increasing, but that the rate of increase is also increasing. The estimate of Finkelnburg that the lengthening of life during the interval between the sixteenth century and the end of the eighteenth century was from eighteen or twenty years to a little over thirty years, shows a rate of increase of about four years per century. During the following century he estimated that the life span increased from a little over thirty to thirty-eight or forty years, or about nine years per century. In the table we see that in England the length of life was increasing in the middle of the nineteenth century at a rate of from five to nine years per century, while during the last quarter it was increasing at from fourteen to sixteen years per century. In Massachusetts the imperfect data indicate that life lengthened in the first half of the eighteenth century at the rate of about seven years a century. The indication for the last part of the nineteenth century is that it increased at the rate of fourteen years per century.

We may briefly summarize chronologically the general rate of increase as follows:

LENGTHENING OF HUMAN LIFE PER CENTURY

During seventeenth and eighteenth centuries	4
During first three quarters of the nineteenth century	9
Present rate in Massachusetts	14
Present rate in Europe	17
Present rate in Prussia	27

It would be surprising if the future should not witness a further lengthening of human life, and at an increasing rate. Of course there is a limit to the further increase of human life, but there is good reason to believe that the limit is still far off.

It has been estimated that it is possible to prolong life fifteen years.[1] This is equivalent to reducing the death-rate by about one-fourth. This estimate is but a minimum.

II. THE BROADENING OF LIFE

Length of life is but one indication of vitality. Everyone recognizes that the life of a valetudinarian or an invalid, however long, is but a narrow stream. We may therefore conceive, besides the dimension of length, another dimension of life, which may be called its "breadth." By the breadth of life we mean its healthiness. An ideally healthy life, free throughout from ailment and disability, is rarely, if ever, found. But it is the aim of hygiene to approximate such an ideal.

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[1] [The extensive statistical study upon which this estimate is based is omitted. —EDITORS.]

a) *Prevalence of serious illness.*—

The amount of invalidity or illness in a community has been estimated by a number of different investigators, and in a number of different ways. While the results vary somewhat, on the whole they harmonize fairly well.

The most careful consideration of the various illness statistics available was made by Farr. He finds that the rate of invalidity increases with age, and at the later ages increases with great rapidity. The material he has used has come chiefly from various friendly societies in Great Britain and Scotland, and especially from the East India Company. His final conclusion is probably nearly as valid today as then. It is that corresponding to each death in a community, there are a little more than two years of illness.

Another way of expressing the same fact is that for each annual death, there are on the average two persons constantly sick during the year. Applying this estimate to the United States, in which about 1,500,000 persons die per annum, there are probably at all times about 3,000,000 persons seriously ill. This means an average of thirteen days per annum for each inhabitant. . . . .[1]

b) *Prevalence of minor ailments.*—

The statistics of morbidity which we have given, refer to forms which are relatively acute; but there are many milder forms which do not incapacitate the patient from work or compel him to take to his bed. The extent of these milder ills is not generally appreciated. They are often carefully guarded secrets. The individual often knows only his own physical troubles, but is unaware of the fact that almost every person about him has such troubles also. Once you penetrate beneath conventional acquaintance there will almost invariably be found some functional impairment of heart, liver, kidneys, or bladder; or dyspepsia, gastritis, jaundice, gallstones, constipation, diarrhea; or insomnia, neurasthenia, nervousness, neuritis, neuralgia, sick headache; or tonsilitis, bronchitis, hay fever, catarrh, grip, colds, sore throat; or rupture, hernia, phlebitis, skin eruption; or rheumatism, lumbago, gout, obesity; or decayed teeth, baldness, deafness, eye ailment, spinal curvature, lameness, broken bones, dislocations, sprains, bruises, cuts, burns, or other "troubles."

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[1] [One disease after another is here taken up; and it is shown how a considerable proportion of serious illness is preventable.—Editors.]

That almost all minor ailments can be avoided is scarcely to be doubted. Doctor Gulick is "inclined to believe that something like nine-tenths of all the minor ailments that we have, and which constitute the chief source of decreasing our daily efficiency, could be removed by careful attention."

c) Prevalence of undue fatigue.—

When a person is free from all specific ailments, both serious and minor, he usually calls himself "well." There is, however, a vast difference between such a "well" man, and one in ideally robust health. The difference is one of endurance or susceptibility to fatigue. Many "well" men cannot run a block for a street car or climb more than one flight of stairs without feeling completely tired out, while another "well" man will run twenty-five miles or climb the Matterhorn from pure love of sport. The Swiss guides, throughout the summer season, day after day, spend their entire time in climbing. A Chinese coolie will run for hours at a stretch. That the world regards such performances as "marvelous feats of endurance" only shows how marvelously out of training the world, as a whole, really is. In mental work some persons are unable to apply themselves more than an hour at a time, while others, like Humboldt or Mommsen, can work almost continuously through fifteen hours of the day.

As Mosso and others have proved, muscular fatigue is a chemical effect, due to the circulation of "fatigue poisons" in the blood. This has been strikingly shown by experiments by Weishardt and others on dogs; when blood is transfused from an exhausted dog to a "frisky" one, the latter immediately wilts and becomes fatigued like the former, although he has not exerted himself in the least. In order to reduce fatigue, therefore, we should keep down fatigue poisons. It is not unlikely that almost all poisons produce fatigue, whether the poisons come from infections, from drugs, from impure or excessive food, from bad air, or from exertion. . . . .[1]

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[1] [Here follows a discussion of the various causes of fatigue, such as the use of alcohol and tobacco, improper diet, overexertion, excessive hours of labor, etc.—EDITORS.]

The economic waste from undue fatigue is probably much greater than the waste from serious illness. We have seen that the average serious illness per capita is usually about two weeks each year. This is about 4 per cent of the year. Expressed differently, about 4 per cent of the population is constantly sick.

On the other hand, the number that suffer partial disability through undue fatigue, certainly constitute the great majority of the population. No observer can fail to conclude that this is true of the American working, business, and professional classes, and the latest word among the students of school hygiene is that it is true to a large extent even among children. If, therefore, we assume that only 50 per cent of the population is suffering some impairment of its best powers through undue fatigue, we are on safe ground. The extent to which the power of this supposed 50 per cent of the population is impaired must certainly exceed 10 per cent. When we consider that young men, supposed to be perfectly well, have the enormous room for improvement indicated in this chapter, and when we consider the gratifying results of experiments with a shorter work day, it will be seen that the true impairment is probably several times 10 per cent. Yet, if only 50 per cent of the population are suffering an impairment equal to only 10 per cent of their working powers, the result is equivalent to 5 per cent of the population suffering total impairment, which is more than the 4 per cent impairment from serious illness.

The relatively slight impairment of efficiency due to overfatigue leads to more serious impairment. Just as minor ailments prove to have an unsuspected importance when considered as gateways to serious illness, so the inefficiency from fatigue is vested with great significance as the first step toward minor ailments. Obviously, if overfatigue could be reduced to a minimum, this reduction would carry with it the prevention of the major part of minor ailments, which in turn would lead to a great reduction in more serious illness, and this finally would lead to a great reduction in mortality. A typical succession of events is first fatigue, then colds, then tuberculosis, then death. Prevention, to be effective, must begin at the beginning.

III. THE MONEY VALUES OF PREVENTABLE WASTES

Estimates of the money value of preventable wastes depend on the valuation of human life, of which several appraisals have been attempted. . . . We take, in the absence of any good statistics,

$700 per annum as a guess, but a safe minimum for the average earnings of the workers of all grades, from day laborers to railroad presidents. This assumes that all of the working years are actually employed in work. But, since about one-fourth of the persons of working age are not workers, but are supported (for the most part) by earnings of capital, the average should be cut down to three-fourths of this figure, or $525.

Using this as a basis, we may compute the minimum worth of the average American life at different ages, as follows:

Age	Net Worth of a Person, in Dollars	Age	Net Worth of a Person, in Dollars
0	90	30	4,100
5	950	50	2,900
10	2,000	80	−700
20	4,000		

From the table from which these figures are taken it is possible to base minimum estimates for (1) the average economic value of the inhabitants of the United States by using the census figures for age distribution of population; this calculated average is $2,900; (2) the average economic value of the lives now sacrificed by preventable deaths, using the age distribution of deaths, and the percentages of preventability; this calculated average is $1,700.

The first figure shows that what might be called the vital assets of the United States for the population of over 85,500,000, as estimated for 1907 by the census, amount in value to 85,500,000×$2,900, or $250,000,000,000, which, though a minimum estimate, greatly exceeds the value of all other wealth; the second figure enables us to estimate the needless waste of our vital assets.

If we take the estimate of Professor Willcox of the death-rate in the United States, as at least 18 per 1,000 for the 85,500,000 persons estimated by the census as the population of the United States in 1907, we have 1,500,000 as the number of deaths in the United States per annum. Of these 1,500,000 deaths, 42 per cent, or 630,000, are annually preventable or postponable. Since each postponement would save on the average $1,700, the national annual unnecessary loss of capitalized net earnings is 630,000×$1,700, or $1,070,000,000, or about $1,000,000,000.

With our present population, there are always about 3,000,000 persons in the United States on the sick list. For the most part, these persons are older than the average. Farr gives a table showing that morbidity increases with age in geometric progression. By means of his table we may calculate on the same basis as the previous calculations—that of the 3,000,000 sick, very close to a third, or 1,000,000 persons, are in the working period of life. Assuming that average earnings in the working period are $700, and that only three-fourths of the one million potential workers would be occupied, we find over $500,000,000 as the minimum loss of earnings.

The cost of medical attendance, medicine, nursing, etc., is conjectured by Dr. Biggs in New York, to average for the consumptive poor at least $1.50 per day of illness. The cost per day of other illnesses than tuberculosis is presumably greater, and also the cost per day for other classes is higher than for the poor. Applying this to the 3,000,000 years of illness annually experienced, we should have $1,500,000,000 in all as the minimum annual cost of this kind.

The statistics of the Commissioner of Labor show that the average expenditure for illness and death amounts to $27 per annum. This is for workingmen's families only. But even this figure, if applied to the 17,000,000 families of the United States, would make the total bill for caring for illness and death $460,000,000. The true cost may well be more than twice this sum. Certainly this estimate is more than safe, and is only one-third of the sum obtained by using Dr. Biggs's estimate.

The sum of the costs of illness, including loss of wages and cost of care, is thus $460,000,000+$500,000,000, or $960,000,000.

The above estimate is a general one for all illness. It would be possible to offer figures for the particular losses from particular diseases. Thus, from tuberculosis, the gross loss of earnings by illness and of potential earnings cut off by death, together with the expenses of illness, etc., amount to over $1,000,000,000 per annum.

Of the sum mentioned, the loss to the consumptives themselves amounts to over $660,000,000, leaving $440,000,000 as the loss to other members of the community. At least three-fourths of these costs are preventable. Dr. George M. Kober thinks it is conservative to say that the annual cost of typhoid in the United States is $350,000,000, and Dr. L. O. Howard believes that malaria alone costs the country $100,000,000 annually, and the insect diseases generally $200,000,000. He points out that one great item of loss is the reduced value of real estate in malarial regions. By drainage and destruction of mosquitos, most of this waste could be saved. The cost of the care of the insane and feeble-minded is estimated by Charles L. Dana at $85,000,000 annually. What fraction of these costs is preventable it is difficult to say. The economic loss due to alcohol has been variously estimated. Of the billion dollars or more found to represent the cost of illness, by far the major part is certainly avoidable. This is the belief of the best observers, such as Dr. Gulick, Dr. Kellogg, Mrs. Richards, Dr. Anderson, and others. Unfortunately, there are no exact statistics of preventability. We feel safe, however, in concluding that at least half a billion could be saved from the present cost of illness. This, added to the loss by preventable deaths of potential earnings of a billion, gives at least a billion and a half of preventable waste. This does not include the losses from inefficient work due to drunkenness or other vicious habits; nor does it include the cost of "undue fatigue," which we have some reason to believe exceeds in its effect on efficiency the loss from illness. But it would not be possible to state this loss in any definite or convincing figures.

The actual economic saving annually possible in this country by preventing needless deaths, needless illness (serious and minor), and needless fatigue, is certainly far greater than one and a half billions, and may be three or more times as great.

Dr. George M. Gould estimated that sickness and death in the United States cost $3,000,000,000 annually, of which at least a third is regarded as preventable.

IV. THINGS WHICH NEED TO BE DONE

In order that American vitality may reach its maximum development, many things need to be done. Among them are the following:

1. The national government, the states, and the municipalities should steadfastly devote their energies and resources to the protection of the people from disease. Such protection is quite as properly a governmental function as is protection from foreign invasion, from criminals, or from fire. It is both bad policy and bad economy to leave this work mainly to the weak and spasmodic efforts of charity, or to the philanthropy of physicians.

2. The national government should exercise at least three public-health functions: first, investigation; second, the dissemination of information; third, administration.

It should remove the reproach that more pains are now taken to protect the health of farm cattle than of human beings. It should provide more and greater laboratories for research in preventive medicine and public hygiene. Provision should also be made for better and more universal vital statistics, without which it is impossible to know the exact conditions in an epidemic, or, in general, the sanitary or insanitary conditions in any part of the country. It should aim, as should state and municipal legislation, to procure adequate registration of births, statistics of which are at present lacking throughout the United States.

The national government should prevent transportation of disease from state to state in the same way as it now provides for foreign quarantine and the protection of the nation from the importation of disease by foreign immigrants. It should provide for the protection of the passenger in interstate railway travel from infection by his fellow-passengers and from insanitary conditions in sleeping-cars, etc.

It should enact suitable legislation providing against pollution of interstate streams.

It should provide for the dissemination of information in regard to the prevention of tuberculosis and other diseases, the dangers of impure air, impure foods, impure milk, imperfect sanitation, ventilation, etc. Just as now the Department of Agriculture supplies specific information to the farmer in respect to raising crops or live stock, so should one of the departments, devoted principally to health and education, be able to provide every health officer, school teacher, employer, physician, and private family with specific information in regard to public, domestic, and personal hygiene.

It should provide for making the national capital into a model sanitary city, free from insanitary tenements and workshops, air pollution, water pollution, food pollution, etc., with a rate of death and a rate of illness among infants and among the population generally so low and so free from epidemics of typhoid or other diseases as will arouse the attention of the entire country and the world.

There should be a constant adaptation of the pure-food laws to changing conditions. Meat inspection, and other inspection, should be so arranged as to protect, not only foreigners, but our own citizens. The existing health agencies of the government should be concentrated in one department, better co-ordinated, and given more powers and appropriations.

3. State boards of health and state legislation should provide for the regulation of labor of women, should make physiological conditions for women's work, and prevent their employment before and after childbirth; should regulate the age at which children shall be

employed, make reasonable regulations in regard to hours of labor and against the dangers in hazardous trades, and especially against the particular dangers of dust and poisonous chemicals; should make regulations for sanitation and provide inspection of factories, schools, asylums, prisons, and other public institutions. Where municipalities have not the power to enact the legislation above mentioned with reference to local conditions, the necessary legislation or authority should be provided by the state. Or where, by reason of the small size of the town, no sufficient local action is possible, the state should exercise the necessary functions. It should, in such cases, advise and supervise local boards of health. It should have an engineering department and advise regarding the construction of sewers and water supplies. Pollution of such supplies, unless entirely local, should be prevented by the state, which should be equipped with laboratories for the analysis of water, milk, and other foods. Suitable legislation should be passed regulating the sale of drugs, especially preparations containing cocaine, opium, or alcohol. Legislation—not too far in advance of public sentiment needed to enforce it—should be passed regulating the sale of alcoholic beverages. State registration of births, deaths, and cases of illness should be much more general and efficient than at present.

4. Municipal boards of health need to have more powers and greater appropriations; less political interference and better trained health officers; more support in public opinion. Their ordinances in regard to expectoration, notification of infectious disease, etc., should be better enforced by the police departments.

More legislation should be advocated, passed, and enforced to the end that streets may be kept clean, garbage properly removed, sewage properly disposed of, air pollution of all kinds prevented, whether by smoke, street dust, noxious gases, or any other source. Noises also should be lessened.

Municipalities need also to take measures to prevent infection being carried by flies, mosquitoes, other insects and vermin, and by prostitution. They need to guard with greater care the water supply, and in many cases to filter it; they should make standards for milk purity and enforce them; they should also regularly inspect other foods exposed for sale; provide for sanitary inspection of local slaughter houses, dairies, shops, lodging and boarding-houses, and other establishments within the power of the particular municipality; they should make and enforce stricter building laws, especially as relating to tenements, to the end that dark-room tenements may be eliminated and all tenements be provided with certain minimum standard requirements as to light, air, and sanitary arrangements.

5. School children should be medically inspected and school hygiene universally practiced. This involves better protection against school epidemics, better ventilation, light, and cleanliness of the schoolroom, the discovery and correction of adenoids, eye strain, and nervous strain generally, and the provision for playgrounds. Sound scientific hygiene should be taught in all schools, public, private, normal, and technical, as also in colleges and universities.

6. The curricula of medical schools should be rearranged with a greater emphasis on prevention and on the training of health officers. Sanatoria and hospitals, dispensaries, district nursing, tuberculosis classes, and other semi-public institutions should be increased in number and improved in quality. The medical profession, keeping pace with these changes, should be the chief means of conveying their benefits to the public. Universities and research institutions need to take up the study of hygiene in all its branches. Now that the diseases of childhood are receiving attention, the next step should be to study the diseases of middle life. These are diseases, to a large extent, of nutrition and circulation, and consequently these subjects should receive special attention. Intelligent action must rest on knowledge, and knowledge of preventing disease is as yet extremely imperfect.

7. In industrial and commercial establishments employers may greatly aid the health movement, and in many cases make their philanthropy self-supporting by providing social secretaries, lunch and rest rooms, physiological (generally shorter) hours of work, provision for innocent amusements, seats for women, etc.

Life insurance companies could properly and with much profit club together to instruct their risks in self-care and secure general legislation and enforcement of legislation in behalf of public health.

8. The present striking change in personal habits of living should be carried out to its logical conclusion until the health ideals and the ideals of athletic training shall become universal. This change involves a quiet revolution in habits of living, a more intelligent utilization of one's environment, especially in regard to the condition of the air in our houses, the character of the clothes we wear, of the site and architecture of the dwelling with respect to sunlight, soil, ventilation, and sanitation, the character of food, its cooking, the use of alcohol, tobacco, and drugs, and last, but not least, sex hygiene in all its bearings.

9. The fight against disease will aid in the fight against pauperism and crime. It is also true that any measures which tend to eliminate poverty, vice, and crime will tend to improve sanitary conditions.

10. Finally, eugenics, or hygiene for future generations, should be studied and gradually put in practice. This involves the prohibition of flagrant cases of marriages of the unfit, such as syphilitics, the insane, feeble-minded, epileptics, paupers, or criminals, etc. The example of Indiana in this regard should be considered and followed by other states, as also in regard to the unsexing of rapists, criminals, idiots, and degenerates generally. A public opinion should be aroused which will not only encourage healthy and discountenance degenerate marriages, but will become so imbedded in the minds of the rising generation as will unconsciously, but powerfully, affect their marriage choices.

32. CAUSES OF THE GROWTH OF CITIES[1]

The industries of the human race may be conveniently grouped thus: (1) extractive, including agriculture, mining; (2) distributive, including commerce, wholesale and retail trade, transportation, communication, and all the media of exchange; (3) manufacturing; (4) services and free incomes, including domestic servants, government officials, professional men and women, students, etc.

The extractive industries generally require the dispersion of the persons engaged therein.[2] In particular, agriculture, the principal extractive industry, cannot be prosecuted by persons residing in large groups. It is conceivable that transportation methods might be so perfected as to permit the cultivator of the soil to reside in a city, but it is very unlikely. On the contrary, the improvements heretofore made in transportation have only strengthened the dispersion of the agricultural population by permitting uninhabited parts of the earth's surface to be settled and brought into cultivation. This will probably be the development of the future as far as human eyes can see.

The distributive industries, on the other hand, are distinctly centralizing in their effects upon the distribution of the population engaged in them. As methods of distribution have been improved and the distributive area enlarged, the tendency toward concentration has increased. The consolidation of two railway lines transfers employees from the junction to the terminal city. Every improvement in the mechanism of exchange favors the commercial center. Of even greater importance is the fact that the production of wealth is increasing at leaps and bounds; every year there is vastly greater wealth to distribute, and the process of distribution will require a growing percentage of all the workers for its efficient action. Hence, the more the social organism grows, and the higher its evolution, so much greater will the commercial centers become.

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[1] Adapted from Adna F. Weber, *The Growth of Cities in the Nineteenth Century*, pp. 223–29. Columbia University *Studies in History, Economics and Public Law*, Vol. XI, 1899.

[2] In mining districts, it is true, the population is, oftener than not, quite dense. Nevertheless, it is seldom concentrated in great cities, the Transvaal being an exception to the general rule.

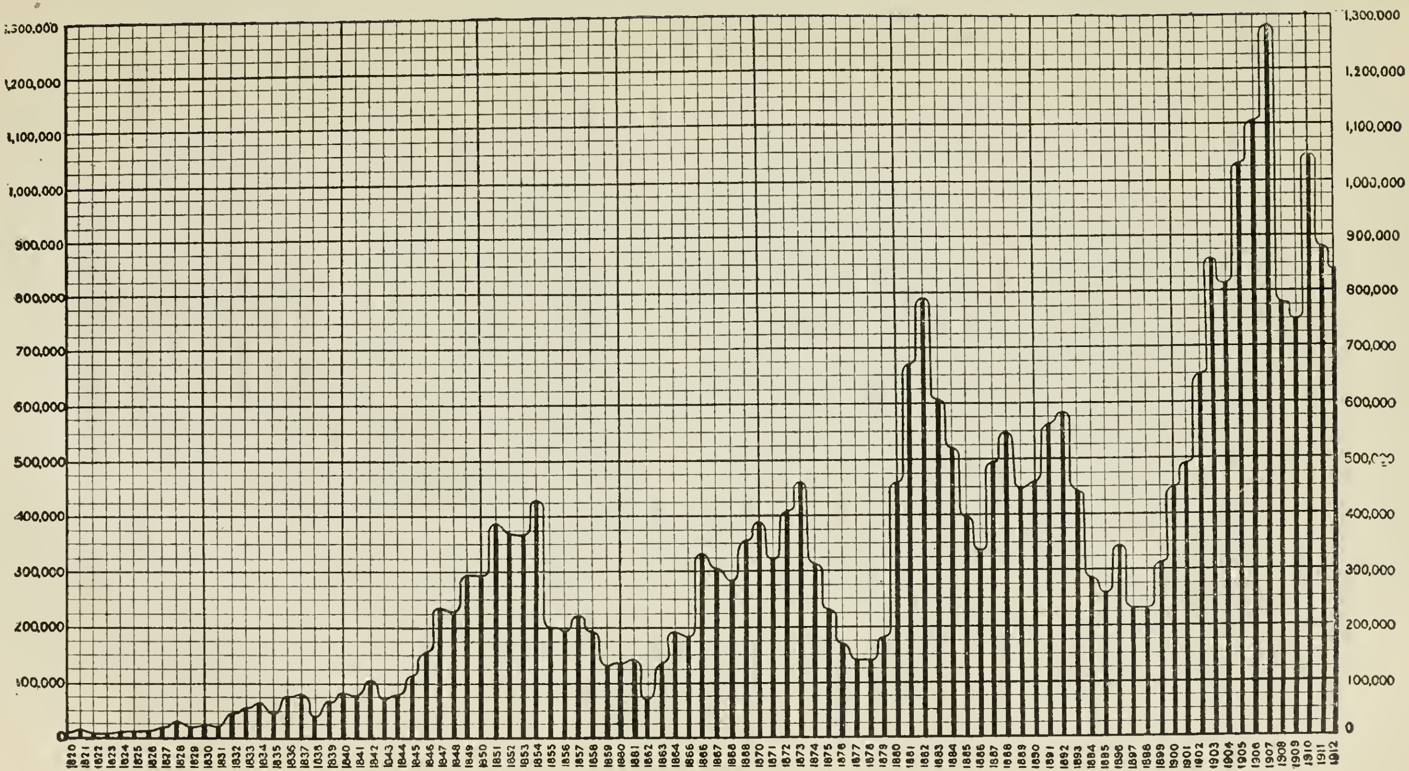
Manufacturing industries also tend toward the concentration of population, and up to recent years manufacturing centers were coincident with the commercial centres, i.e., the great cities. Recently the equalization of transportation facilities and the excessive rents of great cities have caused the managers of a good many industries to abandon them as sites in favor of the suburb or small town. The reason that this movement does not make for complete decentralization is that production on a large scale is the goal toward which all industries are tending with enlarging and more regular markets, and more convenient means of communication; and production on a large scale requires, as a rule, the large factory and the grouping of allied trades. Other obstacles to decentralization are the presence in the large city of a supply of cheap, unskilled labor; of the best knowledge of art and technique; and especially of numerous industries whose products are intended for local consumption.

The remainder of the population will in the main follow where the preceding classes lead. Those engaged in the professions or the rendering of personal service must reside near the consumers of their products, that is, where people are numerous and money is plenty.

Thus it appears that the efficient industrial organization of a nation on modern lines requires the concentration of population in virtually all the industries except agriculture; and since this industry, for several decades, has been able to deliver its product by employing a continually smaller proportion of the total population, it follows that the proportion in the centers of population has been increasing.

In the immediate future, we may expect to see a continuation of the centralizing movement. While many manufacturers are locating their factories in the small cities and towns, there are other industries that prosper most in the great cities. Commerce, moreover, emphatically favors the great centers, rather than the small or intermediate centers. And since, with ever-increasing production flowing from improved methods, commerce and trade are constantly expanding and absorbing an increasing proportion of the population, while manufacturing in a country where it has reached the stage of self-sufficiency employs a constant or even declining proportion of the population, the prospect is that the larger cities, including of course their suburbs, will continue to absorb the superfluous population of the rural districts and villages.

33. CHART SHOWING THE TOTAL IMMIGRATION TO THE UNITED STATES, FROM ALL COUNTRIES, FOR EACH YEAR FROM 1820 TO 1912[1]



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[1] From the *Report of the U.S. Commissioner-General of Immigration*, 1912.

34. SOURCES OF IMMIGRATION AND CHARACTER OF IMMIGRANTS[1]

From 1820 to June 30, 1910, 27,918,992 immigrants were admitted to the United States. Of this number 92.3 per cent came from European countries, which countries are the source of about 93.7 per cent of the present immigration movement. From 1820 to 1883 more than 95 per cent of the total immigration from Europe originated in the United Kingdom, Germany, Scandinavia, the Netherlands, Belgium, France, and Switzerland. In what follows the movement from these countries will be referred to as the "old immigration." Following 1883 there was a rapid change in the ethnical character of European immigration, and in recent years more than 70 per cent of the movement has originated in southern and eastern Europe. The change geographically, however, has been somewhat greater than the change in the racial character of the immigration, this being due very largely to the number of Germans who have come from Austria-Hungary and Russia. The movement from southern and eastern Europe will be referred to as the "new immigration." In a single generation Austria-Hungary, Italy, and Russia have succeeded the United Kingdom and Germany as the chief sources of immigration. In fact, each of the three countries first named furnished more immigrants to the United States in 1907 than came in the same year from the United Kingdom, Germany, Scandinavia, France, the Netherlands, Belgium, and Switzerland combined.

The old immigration movement in recent years has rapidly declined, both numerically and relatively, and under present conditions there are no indications that it will materially increase. The new immigration movement is very large, and there are few, if any, indications of its natural abatement. The new immigration, coming in such large numbers, has provoked a widespread feeling of apprehension as to its effect on the economic and social welfare of the country. . . .

The old immigration movement was essentially one of permanent settlers. The new immigration is very largely one of individuals a considerable proportion of whom apparently have no intention of permanently changing their residence, their only purpose in coming to America being to temporarily take advantage of the greater wages paid for industrial labor in this country. This, of course, is not true of all the new immigrants, but the practice is sufficiently common to warrant referring to it as a characteristic of them as a class. From all data that are available it appears that at least 40 per cent of the new immigration movement returns to Europe and that about two-thirds of those who go remain there. This does not mean that all of these immigrants have acquired a competence and returned to live on it. Among the immigrants who return permanently are those who have failed, as well as those who have succeeded. Thousands of those returning have, under unusual conditions of climate, work, and food, contracted tuberculosis and other diseases; others are injured in our industries; still others are the widows and children of aliens dying here. These, with the aged and temperamentally unfit, make up a large part of the aliens who return to their former homes to remain.

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[1] From *Reports of the Immigration Commission* (1911), I, 23–24.

IMMIGRATION TO THE UNITED STATES BY DECADES, 1820 TO 1910[1]

YEAR ENDING JUNE 30	TOTAL NUMBER OF IMMIGRANTS	PER CENT FROM		
		Northern and Western Europe	Southern and Eastern Europe	Other Specified Countries
1820–1830..........	151,824	87.0	2.9	10.1
1831–1840..........	599,125	92.5	1.1	6.5
1841–1850..........	1,713,251	95.9	.3	3.8
1851–1860..........	2,598,214	94.6	.8	4.5
1861–1870..........	2,314,824	88.5	1.5	10.1
1871–1880..........	2,812,191	73.7	7.1	19.2
1881–1890..........	5,246,613	72.0	18.3	9.7
1891–1900..........	3,687,564	44.8	52.8	2.5
1901–1910..........	8,795,386	21.8	71.9	6.3

The old immigration came to the United States during a period of general development and was an important factor in that development, while the new immigration has come during a period of great industrial expansion and has furnished a practically unlimited supply of labor to that expansion.

As a class the new immigrants are largely unskilled laborers coming from countries where their highest wage is small compared with the lowest wage in the United States. Nearly 75 per cent of them are males. About 83 per cent are between the ages of 14 and 45 years, and consequently are producers rather than dependents. They bring little money into the country and send or take a considerable part of their earnings out. More than 35 per cent are illiterate, as compared with less than 3 per cent of the old immigrant class. Immigration prior to 1882 was practically unregulated, and consequently many were not self-supporting, so that the care of alien paupers in several states was a serious problem. The new immigration has for the most part been carefully regulated so far as health and likelihood of pauperism are concerned, and, although drawn from classes low in the economic scale, the new immigrants as a rule are the strongest, the most enterprising, and the best of their class.

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[1] Adapted from data in *Reports of the Immigration Commission* (1911), IV, 16.

35. CAUSES OF EMIGRATION[1]

The present movement of population from Europe to the United States is, with few exceptions, almost entirely attributable to economic causes. Emigration due to political reasons and, to a less extent, religious oppression, undoubtedly exists, but even in countries where these incentives prevail the more important cause is very largely an economic one. This does not mean, however, that emigration from Europe is now an economic necessity. At times in the past, notably during the famine years in Ireland, actual want forced a choice between emigration and literal starvation, but the present movement results in the main from a widespread desire for better economic conditions rather than from the necessity of escaping intolerable ones. In other words, the emigrant of today comes to the United States not merely to make a living, but to make a better living than is possible at home.

The purely economic condition of the wage-worker is generally very much lower in Europe than in the United States. This is especially true of the unskilled laborer class from which so great a proportion of the emigration to the United States is drawn. Skilled labor also is poorly paid when compared with returns for like service in the United States, but the opportunity for continual employment in this field is usually good and the wages sufficiently high to lessen the necessity of emigration. A large proportion of the emigration from southern and eastern Europe may be traced directly to the inability of the peasantry to gain an adequate livelihood in agricultural pursuits either as laborers or proprietors. Agricultural labor is paid extremely low wages, and employment is quite likely to be seasonal rather than continuous. In cases where peasant proprietorship is possible, the land holdings are usually so small, the methods of cultivation so primitive, and the taxes so high, that even in productive years the struggle for existence is a hard one, while a crop failure means practical disaster for the small farmer and farm laborer alike. In agrarian Russia, where the people have not learned to emigrate, a crop failure results in a famine, while in other sections of southern and eastern Europe it results in emigration, usually to the United States. Periods of industrial depression as well as crop failures stimulate emigration, but the effect of the former is not so pronounced, for the reason that disturbed financial and industrial conditions in Europe are usually coincidental with like conditions in the United States, and at such times the emigration movement is always relatively smaller.

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[1] Adapted from *Reports of the Immigration Commission* (1911), IV, 53–62

The fragmentary nature of available data relative to wages in many European countries makes a satisfactory comparison with wages in the United States impossible. Unfortunately, too, these data are missing for countries which are now the chief sources of European emigration to the United States. It is possible, however, to show the relative wages and hours of labor at a comparatively recent date in some leading occupations in the United States, Great Britain, Germany, and France, and as the economic status of wage-workers is much higher in the three latter countries than in southern and eastern European countries the approximate difference between wages in such countries and in the United States may be inferred.

WAGES AND HOURS OF LABOR IN LEADING OCCUPATIONS IN THE UNITED STATES, GREAT BRITAIN, GERMANY, AND FRANCE, 1903

(Compiled from Bulletin of the United States Bureau of Labor, No. 54, pp. 1120–1125.)

OCCUPATION	WAGES PER HOUR IN—				HOURS PER WEEK IN—			
	United States	Great Britain	Germany	France	United States	Great Britain	Ger many	France
Blacksmiths	$0.30	$0.17	$0.12	$0.16	56.56	53.67	60.19	60.19
Boiler makers	.28	.17	.11	.15	56.24	53.67	60.00	61.50
Bricklayers	.55	.21	.13	.13	47.83	51.83	56.50	63.00
Carpenters	.36	.20	.13	.15	49.46	50.17	55.30	60.00
Compositors	.45	.18	.14	.13	49.81	50.00	51.08	60.00
Hod carriers	.29	.13	.08	.10	47.98	51.83	59.50	63.91
Iron molders	.30	.17	......	.13	56.80	53.67	......	60.00
Laborers	.17	.10	.08	.10	56.29	52.50	56.36	60.00
Machinists	.27	.17	.13	.13	56.12	53.67	60.00	61.50
Painters	.35	.18	.12	.13	48.89	51.00	56.25	60.00
Plumbers	.44	.20	.11	.15	48.91	49.17	56.68	54.00
Stonecutters	.42	.20	.12	.14	48.67	50.17	54.00	60.00
Stonemasons	.46	.21	.13	.14	49.54	50.17	56.50	66.00

In the above table the figures for the United States cover a wide area, representing the smaller as well as the larger centers of industry, while those for the European countries were taken in two or three of the larger centers of industry in each country.

As before stated, there are available but little official data relative to wages in southern and southeastern Europe, but it is a well-known fact that they are very much lower there than in Great Britain, Germany, or France. The Commission found this to be true in the portions of Italy, Austria-Hungary, Greece, Turkey, Russia, and the Balkan States visited. In fact, it may safely be stated that in the latter countries the average wage of men engaged in common and agricultural labor is less than 50 cents per day, while in some sections it is even much lower. It is true that in some countries agricultural laborers receive from employers certain concessions in the way of fuel, food, etc., but in cases of this nature which came to the attention of the Commission, the value of the concessions was insufficient to affect materially the low wage scale.

It is a common but erroneous belief that peasants and artisans in the European countries from which the new immigrant comes can live so very cheaply that the low wages have practically as great a purchasing power as the higher wages in the United States. The low cost of living among the working people, especially of southern and eastern Europe, is due to a low standard of living rather than to the cheapness of food and other commodities. As a matter of fact, meat and other costly articles of food, which are considered as almost essential to the everyday table of the American workingman, cannot be afforded among laborers in like occupations in southern and eastern Europe.

Notwithstanding the bad economic conditions surrounding the classes which furnish so great a part of the emigration from southern and eastern Europe, the Commission believes that a laudable ambition for better things than they possess rather than a need for actual necessities is the chief motive behind the movement to the United States. Knowledge of conditions in America, promulgated through letters from friends or by emigrants who have returned for a visit to their native villages, creates and fosters among the people a desire for improved conditions which, it is believed, can be attained only through emigration. Unfortunately, but inevitably, the returned emigrant, in a spirit of braggadocio, is inclined to exaggerate his economic achievements in America. In consequence, some whose emigration is influenced by these highly colored statements, accompanied perhaps by a display of what to them seems great wealth, are doomed to disappointment. The latter, however, naturally hesitate to admit their failures, and consequently there is little to disturb the belief prevailing in southern and eastern Europe that success awaits all who are able to emigrate to the United States.

It is entirely safe to assert that letters from persons who have emigrated to friends at home, have been the immediate cause of by far the greater part of the remarkable movement from southern and eastern Europe to the United States during the past twenty-five years. There is hardly a village or community in southern Italy and Sicily that has not contributed a portion of its population to swell the tide of emigration to the United States, and the same is true of large areas of Austria, Hungary, Greece, Turkey, and the Balkan States. There is a tendency on the part of emigrants from these countries to retain an interest in the homeland, and in consequence a great amount of correspondence passes back and forth. It was frequently stated to members of the Commission that letters from persons who have emigrated to America were passed from hand to hand until most of the emigrants' friends and neighbors were acquainted with the contents. In periods of industrial activity, as a rule, the letters so circulated contain optimistic references to wages and opportunities for employment in the United States, and when comparison in this regard is made with conditions at home it is inevitable that whole communities should be inoculated with a desire to emigrate. The reverse is true during seasons of industrial depression in the United States. At such times intending emigrants are quickly informed by their friends in the United States relative to conditions of employment, and a great falling off in the tide of emigration is the immediate result.

Emigrants who have returned for a visit to their native land are also great promoters of emigration. This is particularly true of southern and eastern European emigrants, who as a class make more or less frequent visits to their old homes. Among the returning emigrants are always some who have failed to achieve success in America, and some who through changed conditions of life and employment return in broken health. It is but natural that these should have a slightly deterrent effect on emigration, but, on the whole, this is relatively unimportant, for the returning emigrant, as a rule, is one who has succeeded and, as before stated, is inclined to exaggerate rather than minimize his achievements in the United

States. In times of industrial inactivity in the United States the large number of emigrants who return to their native lands of course serve as a temporary check to emigration, but it is certain that in the long run such returning emigrants actually promote rather than retard the movement to the United States.

Next to the advice and assistance of friends and relatives who have already emigrated, the propaganda conducted by steamship ticket agents is undoubtedly the most important immediate cause of emigration from Europe to the United States. This propaganda flourishes in every emigrant-furnishing country of Europe, notwithstanding the fact that the promotion of emigration is forbidden by the laws of many such countries as well as by the United States immigration law.

No data are available to show even approximately the total number of such agents and subagents engaged in the steerage ticket business. One authority stated to the Commission that two of the leading steamship lines had five or six thousand ticket agents in Galicia alone, and that there was "a great hunt for emigrants" there. The total number of such agents is undoubtedly very large, for the steerage business is vastly important to all the lines operating passenger ships, and all compete for a share of it. There is at present an agreement among the larger steamship companies which in a measure regulates the distribution of this traffic and prevents unrestricted competition between the lines, but this does not affect the vigorous and widespread hunt for steerage passengers which is carried on throughout the chief emigrant-furnishing countries.

36. THE PROBLEMS OF IMMIGRATION[1]

The chief subjects of a study of immigration may be briefly summarized as follows:

1. The effect of immigration upon the physical characteristics of the American people as shown by:

a) The health of the immigrant on his arrival in this country, and his effect upon the health of the community.

b) The effect of the American environment upon the physical characteristics of the immigrant and his children.

2. The effect of the immigrant upon the mental characteristics of the American people, as shown by:

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[1] Adapted from J. W. Jenks and W. J. Lauck, *The Immigration Problem*, pp. 6–0. Copyright by Funk & Wagnalls Co., 1912.

a) Illiteracy of the various races of immigrants.

b) The relation of the immigrants to our public schools, and the effect of the schools upon the children of immigrants.

c) The papers, books, and associations founded and supported by the immigrants.

d) The occupations of the immigrants that may serve to indicate mental characteristics.

3. The effect of immigration upon the morals of the American people, as shown by:

a) The criminal immigrant. The moral characteristics of the various races may be indicated by the number of crimes and the character of the crimes committed by them.

b) The social evil and the white-slave traffic, indicated in part by court records and observations of social workers and special investigators.

c) The immigrant pauper: A study of the immigrants in the charity hospitals and of the relief given by the charitable societies to immigrants.[1]

4. The effect of immigration upon American institutions, as shown by:

a) Political effects, indicated by the relative number of immigrants of various races that become naturalized, and by the methods employed by political managers to influence the votes of the immigrants.

b) The social effects as indicated by:

(1) The church affiliations and religious practices and customs of the immigrants of different races.

(2) The immigrant family, as shown in part by the marriage relations; the fecundity of immigrant women, as compared with American women; and the children of the immigrants. The tendency also toward establishing families here, or leaving families in Europe, with the expectation of returning to them.

(3) The immigrant colony. Both in our large cities and in agricultural districts, the effect of immigration upon our institutions has been profoundly modified by the frequent inclination of the immigrants to form separate colonies which are maintained sometimes for generations.

(4) Housing and living conditions. The congestion of immigrants in certain sections of our cities and industrial centers, the bunk-house

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[1] Pauperism is, of course, to be considered also in other than its moral aspects, but it is conveniently classified here.

or lodging-house for men without families who do not become permanent residents, the ownership of homes, and similar matters which affect living conditions, are of profound significance to society.

5. The effect of immigration upon the economic and industrial conditions of the United States, as shown by:

a) The occupations of the immigrant and of his children. Have racial characteristics or the European customs of the immigrants so determined the occupations which they enter here as to have produced any material modification of the relations between agriculture, manufacturing, mining, trading, transportation, and other occupations?

b) Changes in industrial methods. Has the incoming of the immigrant affected the use of machinery or modified the form of our industrial organization? How has it affected the geographical distribution of industries?

c) The employment of women and children as wage-earners.

d) The displacement of American laborers or the immigrant wage-earners who arrived in this country twenty years ago by the recent immigrants from different countries.

e) Labor organizations. Have the immigrants strengthened or weakened the labor organizations, and has the effect upon them been beneficial or injurious to the wage-earning classes?

f) The standard of living. At the base of every civilization stand the ideals of the people and their standards of living. The standard of living has so profound an influence upon the probability of the attainment of many ideals that it is to be considered possibly the most fundamental factor in determining the quality of the country's civilization. While one may well agree with James Russell Lowell, that "material success is good, but only as the necessary preliminary to better things," it is impossible to deny the fact that material success is often, if not always, a preliminary that is absolutely necessary to better things, so far as the question concerns development of mental characteristics, and perhaps also the modification of moral and social institutions.

37. IMMIGRATION AND THE BIRTH-RATE[1]

About 1830, however, we reach a turning-point in the history of our population. In the decade 1830–40 the number of foreign arrivals greatly increased. Immigration had not, indeed, reached the enormous dimensions of these later days. Yet, during the decade in question, the foreigners coming to the United States were almost exactly fourfold those coming in the decade preceding, or 599,000. The question now of vital importance is this: Was the population of the country correspondingly increased? I answer, No! The population of 1840 was almost exactly what, by computation, it would have been had no increase in foreign arrivals taken place. Again, between 1840 and 1850, a still further access of foreigners occurred, this time of enormous dimensions, the arrivals of the decade amounting to not less than 1,713,000. Of this gigantic total, 1,048,000 were from the British Isles, the Irish famine of 1846–47 having driven hundreds of thousands of miserable peasants to seek food upon our shores. Again we ask: Did this excess constitute a net gain to the population of the country? Again the answer is, No! Population showed no increase over the proportions established before immigration set in like a flood. In other words, as the foreigners began to come in larger numbers, the native population more and more withheld their own increase.

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[1] Adapted from Francis A. Walker, "Immigration and Degradation," in *Discussions in Economics and Statistics*, Vol. II, pp. 421–26. Henry Holt & Co., 1899.

Now, this correspondence might be accounted for in three different ways: (1) It might be said that it was a mere coincidence, no relation of cause and effect existing between the two phenomena. (2) It might be said that the foreigners came because the native population was relatively declining, that is, failing to keep up its pristine rate of increase. (3) It might be said that the growth of the native population was checked by the incoming of the foreign elements in such large numbers.

The true explanation of the remarkable fact we are considering, I believe to be the last of the three suggested. The access of foreigners, at the time and under the circumstances, constituted a shock to the principle of population among the native element. That principle is always acutely sensitive, alike to sentimental and to economic conditions. And it is to be noted, in passing, that not only did the decline in the native element, as a whole, take place in singular correspondence with the excess of foreign arrivals, but it occurred chiefly in just those regions to which the newcomers most freely resorted.

But what possible reason can be suggested why the incoming of the foreigner should have checked the disposition of the native toward the increase of population at the traditional rate? I answer that the best of good reasons can be assigned. Throughout the northeastern and northern middle states, into which, during the period under consideration, the newcomers poured in such numbers, the standard of material living, of general intelligence, of social decency, had been singularly high. Life, even at its hardest, had always had its luxuries; the babe had been a thing of beauty, to be delicately nurtured and proudly exhibited; the growing child had been decently dressed, at least for school and church; the house had been kept in order, at whatever cost, the gate hung, the shutters in place, while the front yard had been made to bloom with simple flowers; the village church, the public schoolhouse, had been the best which the community, with great exertions and sacrifices, could erect and maintain. Then came the foreigner, making his way into the little village, bringing—small blame to him!—not only a vastly lower standard of living, but too often an actual present incapacity even to understand the refinements of life and thought in the community in which he sought a home. Our people had to look upon houses that were mere shells for human habitations, the gate unhung, the shutters flapping or falling, green pools in the yard, babes and young children rolling about half naked or worse, neglected, dirty, unkempt. Was there not in this a sentimental reason strong enough to give a shock to the principle of population? But there was, besides, an economic reason for a check to the native increase. The American shrank from the industrial competition thus thrust upon him. He was unwilling himself to engage in the lowest kind of day-labor with these new elements of the population; he was even more unwilling to bring sons and daughters into the world to enter into that competition. For the first time in our history, the people of the free states became divided into classes. Those classes were natives and foreigners. Politically, the distinction had only a certain force, which yielded more or less readily under partisan pressure; but socially and industrially that distinction has been a tremendous power, and its chief effects have been wrought upon population.

If the foregoing views are true, or contain any considerable degree of truth, foreign immigration into this country has, from the time it first assumed large proportions, amounted, not to a re-enforcement of our population, but to a replacement of native by foreign stock. That if the foreigners had not come, the native element would long have filled the places the foreigners usurped, I entertain not a doubt. The competency of the American stock to do this would be absurd to question, in the face of such a record as that for 1790 to 1830.

Whatever were the causes which checked the growth of the native population, they were neither physiological nor climatic. They were mainly social and economic; and chief among them was the access of vast hordes of foreign immigrants, bringing with them a standard of living at which our own people revolted.

38. FECUNDITY OF NATIVE AND IMMIGRANT WOMEN IN RHODE ISLAND, 1900[1]

All data are for women under 45 years of age, married ten to twenty years

Nationality (as Determined by Country of Birth of Both Parents)	Percentage of Women Bearing				Average Number of Children Born per Woman
	No Children	1 or 2 Children	3 to 5 Children	More than 5 Children	
All classes	11.3	26.1	35.7	26.9	3.8
Native white of native parentage	17.5	41.2	32.3	9.2	2.5
White of foreign parentage	8.0	18.9	37.7	35.4	4.5
First generation (born abroad)	7.2	17.2	37.8	37.8	4.7
Second generation (born in U.S.)	10.5	23.9	37.6	28.1	3.9
Canadian, English	9.2	26.8	38.9	25.1	3.8
First generation	9.1	25.3	40.4	25.3	3.9
Second generation	10.4	37.3	28.4	24.0	3.4
Canadian, French	5.2	11.2	29.3	54.2	5.7
First generation	5.2	10.2	28.3	56.3	5.9
Second generation	5.2	17.3	34.8	42.8	4.9
English	9.8	30.0	40.0	20.2	3.5
First generation	8.6	27.8	40.7	22.7	3.7
Second generation	14.6	39.4	37.0	9.0	2.6
German	10.4	26.8	43.3	19.4	3.5
First generation	9.5	19.6	46.0	24.9	3.9
Second generation	12.0	39.0	38.9	10.1	2.8
Irish	8.8	15.5	38.0	37.7	4.6
First generation	7.6	13.0	37.3	42.1	4.8
Second generation	10.3	18.7	38.9	32.0	4.2
Italian	5.1	10.5	43.5	40.8	5.0
First generation	5.1	10.6	43.6	40.8	5.0
Second generation	(a)	(a)	(a)	(a)	(a)
Scotch	10.1	27.6	38.9	23.5	3.6
First generation	8.9	23.3	41.6	26.2	3.9
Second generation	15.6	46.7	26.7	11.1	2.4
Swedish	7.0	21.8	46.0	25.1	4.0
First generation	7.1	21.9	46.0	25.0	3.9
Second generation	(a)	(a)	(a)	(a)	(a)
Other foreign	7.3	20.7	41.3	30.8	4.2
First generation	7.0	20.3	41.7	31.1	4.2
Second generation	16.7	30.0	30.0	23.4	3.3
Native negro	22.5	26.2	25.0	26.5	3.3

(a) Not computed owing to small number involved.

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[1] Adapted from *Reports of the Immigration Commission* (1911), XXVIII, 743-48.

39. IMMIGRATION AND THE USE OF MACHINERY[1]

The remarkable development of machinery and division of labor in the United States has been coincident with the enormous immigration of foreign laborers. There is a close relationship between the two movements. In the first place, from the earliest beginnings of modern industry both skilled and unskilled laborers in England and America have implicitly argued that these mechanical innovations, which before their very eyes both substituted unskilled for skilled labor and displaced both kinds of labor, were hostile to their interests. Where, as in England, it has been possible for labor to organize, or where, as in England and Germany, without effective organization, there have been long accepted traditions and customary lethargic methods of doing work, the introduction of machinery and division of labor have been seriously checked. But in America, with its mixed races, there has of late years been neither organization nor tradition, or, rather, obstacles imposed by tradition and organization have been easily broken down. The same is true in England itself in those few trades where the immigrant has entered, as in the clothing trade. It was the Russian Jew who, in that country, introduced the sewing machine and the minute subdivision of labor in the face of the English journeyman tailor, who despised these innovations as destructive to his trade skill. In America this process has been nearly universal in all trades, and the high degree of machine industry in this country, with its low cost of production and large growing exports, may almost be said to be a direct effect of immigration. The industrial menace to Europe from American manufactures is very largely the work of the European immigrant himself removed to America. Not that the immigrant has been prominent as an inventor and organizer of machine production, but that he has removed all obstacles to its free and rapid introduction, and so has stimulated invention and business organization. The minute subdivision of labor in the sewing trade, has indeed been devised in order to put the hordes of unskilled immigrants easily to work, and they have created for themselves practically a new industry, that of ready-made clothing for the country at large, alongside that of the journeyman tailor, who continues his traditional methods of work for the more expensive custom garments. In other trades, likewise, the objections of the old-time trade unions to the introduction of machinery or to its rapid speeding have been nullified by competing establishments springing up and entering the race with him on the basis of machinery and immigrant labor. Ultimately he, too, has been compelled to accept the innovations or lose his job. The last few years have seen a number of unions, like the glass blowers and the iron and steel workers, formally remove through their national conventions several, if not all, their restrictions on machinery, business management, and speeding of work.

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[1] From John R. Commons, 'Immigration and Its Economic Effects," in the *Report of the Industrial Commission* (1901), XV, 313–14.

In the second place, the fact that machinery and division of labor open a place for unskilled immigrants, makes it possible not only to get the advantages of machinery, but also to get the advantages of cheap labor. If machinery were to be considered as strictly an economic force, then the labor employed to operate the machinery should receive the same wages as the skilled labor which it displaces. The economy would show itself in the greatly increased output. This has been the actual outcome in the case of the printers who, owing to their strong organization and their natural protection against immigration in the fact of the English language, receive even better wages on the typesetting machine than they formerly received in setting type by hand, and, at the same time, the cost of the work has been greatly reduced. But if, on the other hand, the new machinery is used to displace well-paid labor by ill-paid labor, it is a means of increasing permanently the proportion of low standard population in our midst. This result in past years has, in many cases, accompanied immigration. It is shown in the cotton textile industry, where, with the chronic revolution in machinery, there has been found a place for continuous succession of lower and lower standards of living, following in order the native American, the Irish, the French Canadian, the Armenian, and the Syrian. The fate of the higher displaced classes and their ability to make the transition to other industries depends upon the expansion of industry and the restriction on the growth of their numbers. While, therefore, immigration has furnished a field for the rapid expansion of machinery, it has permitted that machinery to be used as a refuge for the low-standard population. Whether this population in course of time is itself able to rise in the scale is a problem. Hitherto organization has been able to do but little for those industries where automatic machinery and division of labor have displaced skilled labor by unskilled labor. This is partly owing to another factor—the introduction of women and children.

40. THE RECOMMENDATIONS OF THE IMMIGRATION COMMISSION[1]

As a result of the investigation, the Commission is unanimously of the opinion that in framing legislation emphasis should be laid upon the following principles:

1. While the American people, as in the past, welcome the oppressed of other lands, care should be taken that immigration be such both in quality and quantity as not to make too difficult the process of assimilation.

2. Since the existing law and further special legislation recommended in this report deal with the physically and morally unfit, further general legislation concerning the admission of aliens should be based primarily upon economic or business considerations touching the prosperity and economic well-being of our people.

3. The measure of the rational, healthy development of a country is not the extent of its investment of capital, its output of products, or its exports and imports, unless there is a corresponding economic opportunity afforded to the citizen dependent upon employment for his material, mental, and moral development.

4. The development of business may be brought about by means which lower the standard of living of the wage-earners. A slow expansion of industry which would permit the adaptation and assimilation of the incoming labor supply is preferable to a very rapid industrial expansion which results in the immigration of laborers of low standards and efficiency, who imperil the American standard of wages and conditions of employment.

The Commission agrees that:

1. To protect the United States more effectively against the immigration of criminal and certain other debarred classes—

a) Aliens convicted of serious crimes within a period of five years after admission should be deported in accordance with the provisions of House bill 20980, Sixty-first Congress, second session.

b) Under the provisions of section 39 of the immigration act of February 20, 1907, the President should appoint commissioners to make arrangements with such countries as have adequate police records to supply emigrants with copies of such records, and that thereafter immigrants from such countries should be admitted to the United States only upon the production of proper certificates showing an absence of convictions for excludable crimes.

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[1] *Reports of the Immigration Commission* (1911), I, 45–48.

c) So far as practicable the immigration laws should be so amended as to be made applicable to alien seamen.

d) Any alien who becomes a public charge within three years after his arrival in this country should be subject to deportation in the discretion of the Secretary of Commerce and Labor.

2. Sufficient appropriation should be regularly made to enforce vigorously the provisions of the laws previously recommended by the Commission and enacted by Congress regarding the importation of women for immoral purposes.

3. As the new statute relative to steerage conditions took effect so recently as January 1, 1909, and as the most modern steerage fully complies with all that is demanded under the law, the Commission's only recommendation in this connection is that a statute be immediately enacted providing for the placing of government officials, both men and women, on vessels carrying third-class or steerage passengers for the enforcement of the law and the protection of the immigrant. The system inaugurated by the Commission of sending investigators in the steerage in the guise of immigrants should be continued at intervals by the Bureau of Immigration.

4. To strengthen the certainty of just and humane decisions of doubtful cases at ports of entry it is recommended—

That section 25 of the immigration act of 1907 be amended to provide that boards of special inquiry should be appointed by the Secretary of Commerce and Labor, and that they should be composed of men whose ability and training qualify them for the performance of judicial functions; that the provisions compelling their hearings to be separate and apart from the public should be repealed, and that the office of an additional Assistant Secretary of Commerce and Labor to assist in reviewing such appeals be created.

5. To protect the immigrant against exploitation; to discourage sending savings abroad; to encourage permanent residence and naturalization; and to secure better distribution of alien immigrants throughout the country—

a) The states should enact laws strictly regulating immigrant banks.

b) Proper state legislation should be enacted for the regulation of employment agencies.

c) Since numerous aliens make it their business to keep immigrants from influences that may tend toward their assimilation and naturalization as American citizens with the purpose of using their funds, of encouraging investment of their savings abroad, and their return to their home land, aliens who attempt to persuade immigrants not to become American citizens should be made subject to deportation.

d) Since the distribution of the thrifty immigrant to sections of the country where he may secure a permanent residence to the best advantage, and especially where he may invest his savings in farms or engage in agricultural pursuits, is most desirable, the division of information should be so conducted as to co-operate with states desiring immigrant settlers; and information concerning the opportunities for settlement should be brought to the attention of immigrants in industrial centers who have been here for some time and who might be thus induced to invest their savings in this country and become permanent agricultural settlers. The division might also secure and furnish to all laborers alike information showing opportunities for permanent employment in various sections of the country, together with the economic conditions in such places.

6. One of the provisions of section 2 of the act of 1907 reads as follows:

And provided further, That skilled labor may be imported if labor of like kind unemployed can not be found in this country.

Instances occasionally arise, especially in the establishment of new industries in the United States, where labor of the kind desired, unemployed, cannot be found in this country and it becomes necessary to import such labor. Under the law the Secretary of Commerce and Labor has no authority to determine the questions of the necessity for importing such labor in advance of the importation, and it is recommended that an amendment to the law be adopted by adding to the clause cited above a provision to the effect that the question of the necessity of importing such skilled labor in any particular instance may be determined by the Secretary of Commerce and Labor upon the application of any person interested prior to any action in that direction by such person; such determination by the Secretary of Commerce and Labor to be reached after a full hearing and an investigation into the facts of the case.

7. The general policy adopted by Congress in 1882 of excluding Chinese laborers should be continued.

The question of Japanese and Korean immigration should be permitted to stand without further legislation so long as the present method of restriction proves to be effective.

An understanding should be reached with the British Government whereby East Indian laborers should be effectively prevented from coming to the United States.

8. The investigations of the Commission show an oversupply of unskilled labor in basic industries to an extent which indicates an oversupply of unskilled labor in the industries of the country as a whole, and therefore demand legislation which will at the present time restrict the further admission of such unskilled labor.

It is desirable in making the restriction that—

a) A sufficient number be debarred to produce a marked effect upon the present supply of unskilled labor.

b) As far as possible, the aliens excluded should be those who come to this country with no intention to become American citizens or even to maintain a permanent residence here, but merely to save enough, by the adoption, if necessary, of low standards of living, to return permanently to their home country. Such persons are usually men unaccompanied by wives or children.

c) As far as possible the aliens excluded should also be those who, by reason of their personal qualities or habits, would least readily be assimilated or would make the least desirable citizens.

The following methods of restricting immigration have been suggested:

a) The exclusion of those unable to read or write in some language.

b) The limitation of the number of each race arriving each year to a certain percentage of the average of that race arriving during a given period of years.

c) The exclusion of unskilled laborers unaccompanied by wives or families.

d) The limitation of the number of immigrants arriving annually at any port.

e) The material increase in the amount of money required to be in the possession of the immigrant at the port of arrival.

f) The material increase of the head tax.

g) The levy of the head tax so as to make a marked discrimination in favor of men with families.

All these methods would be effective in one way or another in securing restrictions in a greater or less degree. A majority of the Commission favor the reading and writing test as the most feasible single method of restricting undesirable immigration.

The Commission as a whole recommends restriction as demanded by *economic*, *moral*, and *social* considerations, furnishes in its report reasons for such restriction, and points out methods by which Congress can attain the desired result if its judgment coincides with that of the Commission.

V. CAPITAL GOODS AS ECONOMIC FACTORS

41. THE ROUNDABOUT PROCESS[1]

A peasant requires drinking water. The spring is some distance from his house. There are various ways in which he may supply his daily wants. First, he may go to the spring each time he is thirsty and drink out of his hollowed hand. This is the most direct way; satisfaction follows immediately on exertion. But it is an inconvenient way, for our peasant has to take his way to the well as often as he is thirsty. And it is an insufficient way, for he can never collect and store any great quantity such as he requires for various other purposes. Second, he may take a log of wood, hollow it out into a kind of pail, and carry his day's supply from the spring to his cottage. The advantage is obvious, but it necessitates a roundabout way of considerable length. The man must spend, perhaps a day, in cutting out the pail; before doing so he must have felled a tree in the forest; to do this, again, he must have made an axe, and so on. But there is still a third way; instead of felling one tree he fells a number of trees, splits and hollows them, lays them end for end, and so constructs a runnel or rhone which brings a full head of water to his cottage. Here, obviously, between expenditure of the labor and the obtaining of the water we have a very roundabout way, but then, the result is ever so much greater. Our peasant needs no longer take his weary way from house to well with the heavy pail on his shoulder, and yet he has a constant and full supply of the freshest water at his very door.

Another example. I require stone for building a house. There is a rich vein of excellent sandstone in a neighboring hill. How is it to be got out? First, I may work the loose stones back and forward with my bare fingers, and break off what can be broken off. This is the most direct, but also the least productive way. Second, I may take a piece of iron, make a hammer and chisel out of it, and use them on the hard stone—a roundabout way, which, of course, leads to a very much better result than the former. Third method—having a hammer and chisel I use them to drill a hole in the rock; next I turn my attention to procuring charcoal, sulphur, and nitre, and mixing them in a powder, then I pour the powder into the hole, and the explosion that follows splits the stone into convenient pieces—still more of a roundabout way, but one, which, as experience shows, is as much superior to the second way in result as the second was to the first.

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[1] From Eugen von Böhm-Bawerk, *Positive Theory of Capital*, translated by W. Smart, pp. 18–19. Macmillan & Co., 1891.

Yet another example. I am short-sighted, and wish to have a pair of spectacles. For this I require ground and polished glasses, and a steel framework. But all that nature offers toward that end is silicious earth and iron ore. How am I to transform these into spectacles? Work as I may, it is as impossible for me to make spectacles directly out of silicious earth as it would be to make the steel frames out of the iron ore. Here there is no immediate or direct method of production. There is nothing for it but to take the roundabout way, and, indeed, a very roundabout way. I must take the silicious earth and fuel, and build furnaces for smelting the glass from the silicious earth; the glass thus obtained has to be carefully purified, worked, and cooled by a series of processes; finally, the glass thus prepared—again by means of ingenious instruments carefully constructed beforehand—is ground and polished into the lens fit for short-sighted eyes. Similarly, I must smelt the ore in the blast furnace, change the raw iron into steel, and make the frame therefrom—processes which cannot be carried through without a long series of tools and buildings that, on their part again, require great amounts of previous labor. Thus, by an exceedingly roundabout way the end is attained.

The lesson to be drawn from all these examples alike is obvious. It is—that a greater result is obtained by producing goods in roundabout ways than by producing them directly. Where a good can be produced in either way, we have the fact that, by the indirect way, a greater product can be got with equal labor or the same product with less labor. But, beyond this, the superiority of the indirect way manifests itself in being the only way in which certain goods can be obtained; if I might say so, it is so much the better that it is often the only way!

42. MACHINERY USED IN THE MAKING OF PINS[1]

Pins.—In the manufacture of pins, unit 486, as in most of the units of this industry, the first operation was that of straightening the wire. This was done by means of a wire-straightening machine under both methods, but the time under the modern method was only 6 minutes, while 4 hours, or forty times as long, were required under the primitive method. Under the machine method, in the second operation, the wire was cut and the pins headed and pointed by pin machines, 12 of which were tended by 1 person. The total time charged to this operation was 26.4 minutes. Under the hand method the pin was made in two parts, the head being made in the form of a coil and closed over the end of the shaft. It required seven operations to make the pin under this method, and the aggregate time required was 129 hours, or two hundred and ninety-three times as long as was required under the machine method to accomplish the same result. Whitening the pins was accomplished by means of a whitening tank operated by hand under both methods. Under the modern method this operation required 1.8 minutes as against 30 minutes required under the primitive method. The operation of drying and cleaning the pins was performed under the machine method by the use of a fanning mill in 3 minutes, while under the hand method, by means of a drying pan, 1 hour was required. The pins were polished in a tumbling barrel under both methods, requiring 1.2 minutes under the modern and 30 minutes, or twenty-five times as long, under the primitive method. Pin-sticking machines were used under the modern method for sticking the pins into paper, the work being done in 30 minutes. Under the hand method this was accomplished in two operations, crimping the paper, which required 15 minutes, and sticking in the pins, which required 2 hours. Folding the papers, packing and labeling, and overseeing each required less time under the machine than under the hand method. Under the hand method the time charged to furnishing the power was 1 hour, while under the machine method the motive power was water, and there was no time charged to furnishing it; but 6 minutes were charged to keeping the machinery in order.

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[1] From the *Thirteenth Annual Report of the Commissioner of Labor* (1898), I, 338–39.

The total time required for the production of 12 packages of 1 pound each of pins under the machine method was 1 hour and 33.9 minutes as against 140 hours and 55 minutes required under the hand method—a ratio of about 90 to 1 in favor of the modern method. The handmade pins were made in England by the labor of 12 persons and finished in the United States by 5 persons, while 16 persons worked on the machine product. The machine-made pin is a much more desirable article than the handmade.

43. HAND *vs.* MACHINE METHODS[1]

Name	ARTICLE PRODUCED OR WORK ACCOMPLISHED			YEAR OF PRODUCTION		DIFFERENT OPERATIONS PERFORMED		DIFFERENT WORKMEN EMPLOYED		TIME WORKED				LABOR COST	
	Description		Quantity							Hand		Machine			
	Hand	Machine		Hand	Machine	Hand	Machine	Hand	Machine	Hours	Minutes	Hours	Minutes	Hand	Machine
Boots.....	Men's cheap grade, kip, pegged boots, half-double soles	Men's cheap grade, kip, pegged boots, half-double soles	100 pairs	1859	1895	83	122	2	113	1,436	40.0	154	4.9	$408.5000	$35.4008
Shoes.....	Men's fine grade, calf, welt, lace shoes, single soles, soft box toes	Men's fine grade, calf, welt, lace shoes, single soles, soft box toes	100 pairs	1865	1895	76	146	1	140	2,225	......	296	38.6	556.2496	74.3904
Shoes.....	Men's medium grade, calf, welt, lace shoes, single soles, soft box toes	Men's medium grade, calf, welt, lace shoes, single soles, soft box toes	100 pairs	1863	1895	73	173	1	371	1,831	40.0	234	36.3	457.9164	59.5461
Shoes.....	Men's grain, pegged, brogan shoes, tap soles	Men's grain, pegged, brogan shoes, tap soles	100 pairs	1855	1895	45	84	1	98	283	20.0	62	4.6	56.6668	13.8246
Shoes.....	Women's fine grade, kid, welt, button shoes, single soles, patent-leather tips, soft box toes	Women's fine grade, kid, welt, button shoes, single soles, patent-leather tips, soft box toes	100 pairs	1875	1896	102	140	1	140	1,996	40.0	173	29.5	499.1664	54.6535
Shoes.....	Women's cheap grade, kid, turned, lace shoes, single soles, plain toes	Women's cheap grade, kid, turned, lace shoes, single soles, plain toes	100 pairs	1858	1895	67	95	1	85	1,025	20.0	80	22.3	256.3332	18.5882
Shoes.....	Women's cheap grade, grain, pegged, button shoes, single soles, plain toes	Women's cheap grade, grain, McKay sewed, button shoes, half-double soles, plain toes	100 pairs	1868	1895	56	98	2	269	538	20.0	83	10.7	109.3331	20.4435
Cottonades	36-inch twilled cottonade, 2.18 yards per pound, filling doubled and twisted, 40x40 picks	28-inch twilled cottonade, 3.15 yards per pound, filling doubled and twisted, 60x40 picks	500 yards	1893	1895	19	43	3	252	7,534	1.5	84	14.1	135.6127	6.8118
Drills.....	36-inch cotton drills, 2.92 yards per pound, 36x44 picks	30-inch cotton drills, 3.08 yards per pound, 72x44 picks	500 yards	1891	1896	14	29	3	90	5,031	42.6	79	20.3	88.0549	3.8991
Ginghams.	36-inch gingham checks, 2.5 yards per pound, 44x40 picks	27-inch gingham checks, 4.07 yards per pound, 48x40 picks	500 yards	1863	1895	18	43	3	152	5,844	43.3	72	42.0	102.2826	5.4477
Ginghams.	36-inch gingham plaids, 3.22 yards per pound, 40x36 picks	27-inch gingham plaids, 4.5 yards per pound, 52x44 picks	500 yards	1893	1895	15	45	3	283	5,038	36.6	63	53.1	50.3862	4.0286
Ginghams.	36-inch gingham stripes, 3.26 yards per pound, 36x32 picks	27-inch gingham stripes, 4.35 yards per pound, 44x52 picks	500 yards	1835	1895	16	40	3	166	5,130	12.5	119	14.2	174.4274	7.6882
Sheetings..	36-inch unbleached cotton sheeting, 3.18 yards per pound, 40x48 picks	36-inch unbleached cotton sheeting, 3 yards per pound, 48x48 picks	500 yards	1860	1897	14	53	3	282	5,605	......	52	45.6	84.0750	3.7217
Thread....	2-cord sewing cotton, made from No. 6 yarn	No. 3 5-cord ball sewing cotton, made from No. 18 yarn	100 pounds	1870	1896	5	20	1	125	2,895	......	39	17.8	86.8500	1.8079
Yarn.....	No. 12 cotton yarn	No. 12 cotton yarn	100 pounds	1896	1896	4	27	2	123	3,117	30.0	19	7.0	93.5250	1.2012

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[1] From the *Thirteenth Annual Report of the Commissioner of Labor* (1898), I, 28–29, 40–41.

44. MACHINERY *vs.* HAND LABOR IN THE RAISING OF SMALL GRAINS[1]

Small grains.—Units 3, barley; 13, oats; 17, rice; 18, rye, and 26 and 27, wheat may be grouped under this head and be considered together as to a number of operations. In seeding, a sack was the tool or implement used in all these units under the earlier methods, the seed being sown broadcast and covered by the use of a brush, drag, or harrow. The time for sowing the seed was quite uniform, being, under the primitive method, 1 hour and 25 minutes in units 3, 13, and 27; 1 hour and 22.5 minutes in unit 17; 1 hour and 15 minutes in unit 26, and 1 hour in unit 18. Under the modern method a broadcast seeder was used in units 13 and 26, the sowing being done in 20 minutes and 15 minutes, respectively, or in about one-fourth and one-fifth of the time required by hand, as just shown. The subsequent harrowing to cover the seed occupied 50 minutes and 12 minutes, respectively, in these units as against 2 hours and 50 minutes and 2 hours and 30 minutes under the earlier method. In unit 17 the seed was sown and covered at one operation in 55 minutes as against a total of 3 hours and 12.5 minutes required for the work done in two operations under the more primitive method. The same conditions were found in unit 18 as in unit 17, the time being 1 hour under the modern and 2 hours and 40 minutes under the primitive method. The greatest advance in these units is to be seen in those numbered 3 and 27, where, under the machine method, a combined gang plow, seeder, and harrow broke the ground, sowed and covered the seed, and pulverized the topsoil at one operation. This was accomplished in unit 3 in 10.9 minutes, the power being a traction engine requiring the attention of two men, making the aggregate time 21.8 minutes. In unit 27 the same work was done in 15 minutes, the aggregate time for the engineer and fireman necessary to run the machine being 30 minutes. Strictly speaking, the time of the waterhauler should be added, as he was necessary for the operation of the machines used. Adding this time and comparing it with the total time required for the operations done separately by the primitive method, the time was 32.7 minutes under the modern as against 10 hours and 55 minutes under the primitive method in unit 3, and 45 minutes as against 10 hours and 55 minutes in unit 27, a reduction to about one-twentieth and one-fifteenth the time required under the hand method in the respective units. This great saving is accounted for by the fact that the implement used under the modern method was a 6-gang plow, each gang having 4 plows, each plow cutting 10 inches—total 240 inches—with a seeder and harrow attached to each gang, and all operated by a traction engine. This would seem to mark the limit of progress in this direction, and such machinery is obviously of profitable use only in a level country where farming is conducted on a large scale.

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[1] From the *Thirteenth Annual Report of the Commissioner of Labor* (1898), I, 84–87.

The operation of harvesting was uniformly accomplished by the use of a sickle under the earlier method, the cutting and binding being done by hand. Comparisons cannot be made in all of the units, as the operations vary so much under the modern method. Three units show the use of self-binders and three the use of the combined reapers and thrashers which do away with the operations of binding and shocking the grain. In unit 13 the use of the self-binder reduced the time for cutting, binding, and shocking under the modern method to 2 hours as against 16 hours and 40 minutes under the primitive, these operations under the primitive method requiring more than eight times as long as under the modern. In unit 17 the saving was still greater, the cutting and binding being done in 55 minutes under the modern as against 33 hours, or thirty-six times as long, under the primitive method by the use of sickles, no shocking being reported. The grain was shocked in unit 18, but the operation is kept separate, so that a comparison can be made as to the different operations. The cutting and binding required 1 hour with the self-binder, and 11 hours and 33.8 minutes with sickles, while the shocking required 2 hours under each method. The more complex machines, reported in units 3, 26, and 27, were propelled by steam in units 3 and 27, and by 26 horses in unit 26. Here the grain was reaped, thrashed, and sacked in one continuous operation. In unit 3 the operations necessary to do this work under the earlier method required 48 hours and 40 minutes, while under the later method the time required by the machine was 7.5 minutes, 7 men being employed, making the total time 52.5 minutes; including the time of the two water-haulers, for the same reasons as noted in discussing the combined plow and seeder, the total time under the machine method was 1 hour and 7.5 minutes, or about one-forty-third the time required when sickles and flails were used. In unit 27 the totals are 49 hours and 20 minutes under the earlier method and 1 hour and 21 minutes under the later. The totals in unit 26 show the best proportionate results from the use of the combined reaper and thrasher, being 46 hours and 40 minutes under the earlier and 1 hour under the later method. The time for binding and shocking grain and stacking straw is included in the time for the hand methods given above (units 3, 26, and 27), which operations were not necessary under the machine method.

Thrashing is reported as a separate operation in units 13, 17, and 18. In units 13 and 18 the work was done under the earlier method entirely by hand, the flail, pitchfork, shovel, and winnowing sheet being the tools used, while in unit 17 a horse-power thrasher was used in 1870. This thrasher took 13 hours and 17.5 minutes to do the work done by the steam thrasher in 2 hours and 37.5 minutes. In unit 13, under the hand method, the thrashing required 41 hours and 5 minutes as against 1 hour and 16.8 minutes, the time required by the use of the modern thrasher (including the time charged to hauling water)—a ratio of more than 32 to 1 in favor of the machine. In unit 18, the time required under the earlier and later methods, respectively, was 26 hours and 45.1 minutes and 7 hours. This disproportionately long time required (7 hours) is explained in part by the fact that the length of the rye straw made the work much slower than with other grains, and in part by the fact that the rye being thrashed from the barn mow, more men were necessary than if it had been thrashed from wagons. The actual running time of the thrasher in this case was 30 minutes.

This group presents a comparison of extremes, the appliances being entirely changed throughout in some of the units, showing a more complete supplanting of hand by machine labor than can be found, perhaps, in any other line of agriculture. These changes have taken place in the past 65 years, as indicated by the dates given in these units, though in fact most of them have occurred in a much shorter period. In units 3 and 27 the number of operations is practically reduced to two, and it is in these units that the greatest aggregate saving was effected, the total time in unit 3 being 63 hours and 35 minutes under the earlier and 2 hours and 42.8 minutes under the later method—a ratio of more than 23 to 1 in favor of the modern method; while in unit 27 the respective totals are 64 hours and 15 minutes and 2 hours and 58.2 minutes—a ratio of nearly 22 to 1. These results are the best shown in this industry.

45. MACHINE METHODS IN AGRICULTURE[1]

The *Thirteenth Annual Report of the Department of Labor* gives the results of an extended investigation concerning production by hand and by machine methods, and affords the means for a reliable estimate of the influence of machine power. That portion devoted to agricultural operations shows in detail, for example, how many persons were ordinarily required for the production, by hand or by machine methods, of a given quantity of barley; what separate operations were necessary in that production, as plowing, sowing, harrowing, etc.; what time was required for each operation, what tools or machines, if any, or other helps were used, and the money cost of each operation.

From the summary given on pp. 24–25 of that report it appears that the man-labor power requisite for the production of thirty bushels of barley by the methods commonly in use in the season of 1829–30, amounted to 63 hours and 35 minutes. The man-labor power required for accomplishing the same result, by the methods commonly in use in the season of 1895–96, is shown to have been only 2 hours and 42.8 minutes. From such data, the barley crop of 1896 being known, we may readily determine not only what amount of man-labor was requisite for the production of that crop by the means commonly in use at that time, but also how much barley that same labor-power could have produced by the means commonly in use in the season of 1829–30. The difference between the quantity actually produced in the season of 1895–96, and the quantity which the labor-power required for the work of that season could have produced by the earlier hand methods, will represent the greater product due to the use of machinery. The crediting of the whole of this difference to the use of machinery is, doubtless, crediting it with too much. Credit is due, also, to better methods of cultivation, to pulverization of soils, to the use of fertilizers, to irrigation, rotation of crops, better seed, etc. These are not machine forces, although they are largely dependent upon the use of machinery as the use of machinery is, in some degree, dependent upon them. But to attempt the separation of these credits would be much like attempting to determine which blade of a pair of shears does the cutting. Moreover, these various other forces play, comparatively, a very incidental and subsidiary part. I believe that the following pages will justify this opinion and venture, therefore, to disregard whatever inaccuracy there may be involved in the statement and to say that the entire increased product is due to the use of machinery.[1]

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[1] Adapted from H. W. Quaintance, *The Influence of Farm Machinery on Production and Labor*, in Publications of the American Economic Association, Third Series, Vol. V (1904), No. 4, pp. 19–27.

It will be sufficient, for purposes of illustration, to consider only a few of the principal crops in the production of which machinery has become a recognized factor. The crops selected for this purpose, together with the time of man-labor requisite for producing stated quantities of each crop by hand and by machine methods, as reported by the Department of Labor, are shown in the following table:

Unit No.*	Name and Quantity of Crop Produced and Description of Work Done	Year of Production		Time Worked			
				Hand		Machine	
		Hand	Machine	Hrs.	Min.	Hrs.	Min.
3....	Barley: 30 bushels (1 acre) barley	1829–30	1895–96	63	35.0	2	42.8
9....	Corn: 40 bushels (1 acre) yellow corn, husked; stalks left in field	1855	1894	38	45.0	15	7.8
10....	Cotton: By hand, 750 pounds; by machine 1000 pounds (1 acre) seed cotton	1841	1895	167	48.0	78	42.0
12....	Hay: Harvesting 1 ton (1 acre) timothy hay	1850	1895	21	5.0	3	56.5
13....	Oats: 40 bushels (1 acre) oats	1830	1893	66	15.0	7	5.8
16....	Potatoes: 220 bushels (1 acre) potatoes	1866	1895	108	55.0	38	....
17....	Rice: 2640 pounds (1 acre) rough rice	1870	1895	62	5.0	17	2.5
18....	Rye: 25 bushels (1 acre) rye	1847–48	1894–95	62	58.9	25	10.0
26....	Wheat: 20 bushels (1 acre) wheat	1829–30	1895–96	61	5.0	3	19.2

* The "unit numbers" here given are the unit numbers made use of in the *Thirteenth Annual Report of the Department of Labor*, from which the data in the table are taken. The numbers are repeated here only for purposes of reference.

These several crops for the years covered by the data concerning production by the aid of machine power, were as follows:

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[1] For the purpose of this discussion I shall use the term machinery, generally, to signify not only machines, but also tools or implements, and other man-labor-saving forces when used as essential adjuncts or parts of machines. For example, horses, when used to draw a reaping machine, will be considered as much a part of the machine as an engine and boiler would be, if used for the same purpose.

Name	Crop of	Quantity Produced
Barley	1896	(bushels) 69,695,223
Corn	1894	(bushels) 1,212,770,052
Cotton	1895	(500-pound bales) 7,161,094
Hay	1895	(tons) 47,078,541
Oats	1893	(bushels) 638,854,850
Potatoes	1895	(bushels) 297,237,370
Rice	1896	(pounds) 168,685,440
Rye	1895	(bushels) 27,210,070
Wheat	1896	(bushels) 427,684,346

The number of days' work of man-labor requisite for producing the foregoing specified crops by the aid of machine power, together with the quantity of those several crops which the same labor-power could have produced by the earlier hand method, are shown in the following:

Name	Crop of	Days' Work of Man-Labor Required	The Same Labor-Power	
			By Methods of	Could Have Produced
Barley	1896	630,354	1829–30	(bushels) 2,972,839
Corn	1894	45,873,027	1855	(bushels) 473,528,022
Cotton	1895	28,178,904	1841	(bales) 2,518,972
Hay	1895	18,556,791	1850	(tons) 8,801,640
Oats	1893	11,334,266	1830	(bushels) 68,433,307
Potatoes	1895	5,134,100	1866	(bushels) 103,703,321
Rice	1895	108,889	1870	(pounds) 46,303,587
Rye	1895	2,739,147	1847–48	(bushels) 10,872,795
Wheat	1896	7,099,560	1829–30	(bushels) 23,245,490

Finding next the difference between the quantities of the several crops actually produced under machine methods, in the years indicated, and the quantities which the labor-power requisite for their production with the aid of machines could have produced had it been devoted to the production of those same crops by hand methods, we have the following:

Name	Crop of	Due to Use of Machinery	Percentage of Actual Product
Barley	1896	(bushels) 66,722,384	= 95.7
Corn	1894	(bushels) 739,242,030	= 60.9
Cotton	1895	(bales) 4,642,122	= 64.8
Hay	1895	(tons) 38,276,901	= 81.3
Oats	1893	(bushels) 570,421,543	= 89.2
Potatoes	1895	(bushels) 193,534,049	= 65.1
Rice	1895	(pounds) 122,381,853	= 72.5
Rye	1895	(bushels) 16,337,275	= 60.0
Wheat	1896	(bushels) 404,438,856	= 94.5

The increased effectiveness of man-labor power when aided by the use of machinery, as indicated by these figures, varies from 150 per cent in the case of rye to 2244 per cent in the case of barley. From this point of view a machine is not a labor-saving but rather a product-making device. Taking the per cent of labor saved, as indicating the average proportion of these crops due to the use of machinery, it appears that the quantity of product is almost five times as great, per unit of labor, as it formerly was.

Touching the difference in the cost of production per unit of product the *Thirteenth Annual Report of the Department of Labor* furnishes some data that will well repay a somewhat extended consideration. It should be observed, however, that these data with reference to the cost of production, although collected at the same time and, doubtless, with the same care, as the data already taken from that report, are, nevertheless, for the purposes of generalization, far less reliable. The average workman will perform the same quantity of work in a day, whether he works in one locality or in another; but rates of wages vary with localities and may vary both absolutely and relatively with differences in time. With this qualification in mind, it will be safe to take up the consideration of the data.

Including the crops above considered, the report of the Department of Labor gives detailed information concerning the cost of production, by hand and by machine methods, of twenty-one different crops. The table "Cost of Producing by Hand and by Machine Methods" gives the results of the several investigations in this particular, arranged in the order of the greatest saving in cost of production by machine as compared with hand methods.[1]

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[1] In the production of peas and in both tobacco crops there has been an increase in the cost. This increase is not, however, from the use of machinery in the production of these crops, but rather from the lack of it. In the case of tobacco (unit 22), for example, in which there has been the greatest increase in cost, the hand method production was with the aid of the following: wagon, spades, hoes, rakes, wooden moldboard plows, harrow, turn plow, wooden pegs for setting plants, plow for cultivating, and tobacco knives. The total extent of the machinery used in the production of this crop by machine methods was as follows: plow, harrow rakes, hoes, disk harrow, drag, wagon and barrels, transplanter, double-shovel plow, tobacco knives, wagon and racks, and screw racket prize. (*Thirteenth Annual Report, Department of Labor*, page 464.)—It must be evident at once from a comparison of these items that the difference in machinery cannot account for the difference in cost of production. The cause of the increased cost in the production of tobacco and peas (units 15, 22, and 23) was a higher rate of wages. In the case of peas, wages rose from 62½ cents to $1.00 per day. In the case of

The per cent column of the table on p. 169 shows that, for the most part, there has been a very great decrease in the cost of producing these various crops. The median is 39.92 per cent, but this number is clearly too low, for the crops in which machinery is most used are principally in the upper part of the table.

The data requisite for a similar showing with respect to all farm crops and for any certain period are, I think, not to be had; but we can apply the data presented in the table on p. 169 to the principal crops of the year 1899, as reported by the Twelfth Census. The results are as follows:

COST OF PRODUCING CERTAIN CROPS OF THE YEAR 1899, BY HAND AND BY MACHINE METHODS

NAME	QUANTITY PRODUCED		COST OF PRODUCTION	
			Hand Method	Machine Method
Barley..........	(bushels)	119,634,877	$ 15,472,777	$ 4,227,098
Broom-corn......	(pounds)	90,947,370	4,107,576	1,153,650
Corn............	(bushels)	2,666,440,279	335,304,865	220,647,933
Cotton..........	(bales)	9,534,707	58,638,448	44,898,469
Hay............	(tons)	84,011,299	161,301,694	52,927,118
Oats............	(bushels)	943,389,375	90,801,227	37,735,575
Onions..........	(bushels)	11,791,121	1,535,675	1,126,759
Peas............	(bushels)	9,440,269	3,143,609	3,190,810
Potatoes........	(bushels)	273,328,207	16,373,935	7,417,133
Rice............	(pounds)	283,722,627	773,788	223,539
Rye............	(bushels)	25,568,625	5,369,411	4,397,803
Sugar cane.......	(tons)	6,441,578	12,986,221	5,272,431
Sweet potatoes...	(bushels)	42,526,696	41,676,162	4,167,616
Tobacco.........	(pounds)	868,163,275	6,424,408	18,491,859
Wheat..........	(bushels)	658,534,252	126,109,309	66,841,226
Total.......			$880,019,105	$472,719,019

tobacco (unit 22), wages rose from 30 cents per day to $20 and $23 per month; in unit 23, the rise of wages was from 75 cents to $1.00 per day. It will be readily understood that when there is little or no change in the methods of production a rise in the rate of wages must cause a rise in the total cost of production.

The "hand method" of production, as explained in the report of the department, "should not be construed to mean a method whereby a product is made entirely by the unaided hand and absolutely without the use of machines, but rather as the primitive method of production which was in vogue before the general use of automatic or power machines."—(*Thirteenth Annual Report, Department of Labor*, page 11.)—Similarly, it should be observed, in this connection, that "machine method" does not necessarily imply that machines are used, but only that the work was done by the most approved methods practiced in more recent years.

COST OF PRODUCING BY HAND AND BY MACHINE METHODS

Unit No.*	Name and Quantity of Crop Produced	Year of Production		Cost		Percentage of Decrease
		Hand Method	Machine Method	Hand Method	Machine Method	
3..	Barley: 30 bushels (1 acre)	1829–30	1895–96	\$ 3.88	\$ 1.06	72.62
27..	Wheat: 20 bushels (1 acre)	1829–30	1895–96	4.00	1.12	71.98
5..	Broom-corn: 1 ton (3 acres)	1860	1895	90.33	25.37	71.92
17..	Rice: 2,640 pounds (1 acre)	1870	1895	7.20	2.08	71.09
21..	Sweet potatoes: 105 bushels (1 acre)...............	1868	1895	34.30	10.29	70.00
12..	Hay: Harvesting 1 ton (1 acre) timothy hay......	1850	1895	1.92	.63	66.95
8..	Corn: 40 bushels (1 acre) yellow corn, shelled; stalks, husks, and blades cut into fodder.........	1855	1894	16.34	6.62	59.49
20..	Sugar corn: 20 tons (1 acre)	1855	1895	40.32	16.37	59.40
13..	Oats: 40 bushels (1 acre)..	1830	1893	3.85	1.60	58.47
19..	Strawberries: 4,000 quarts (1 acre)...............	1871–72	1894–95	231.28	97.92	57.66
24..	Tomatoes: 150 bushels (1 acre).................	1870	1895	36.62	15.88	56.64
16..	Potatoes: 220 bushels (1 acre).................	1866	1895	13.18	5.97	54.68
26..	Wheat: 20 bushels (1 acre)	1829–30	1895–96	3.83	2.03	47.11
11..	Hay: Harvesting and baling 1 ton (1 acre) timothy hay.................	1860	1894	3.19	1.91	39.92
2..	Apple trees: 10,000 (1 acre) 32 months, from grafts..	1870–72	1893–95	200.00	121.00	39.50
4..	Beets: 300 bushels (1 acre)	1850	1895	32.30	20.01	38.05
9..	Corn: 40 bushels (1 acre) yellow corn, husked; stalks left in field......	1855	1894	5.03	3.31	34.20
7..	Carrots: 30 tons (1 acre)..	1850	1895	38.71	37.21	29.72
14..	Onions: 250 bushels (1 acre)	1850	1895	32.56	23.89	26.64
1..	Apple trees: 10,000 (1 acre) 32 months, from grafts..	1869–71	1893–95	202.00	150.69	25.41
10..	Cotton†: By hand, 750 pounds; by machine, 1,000 pounds (1 acre)...	1841	1895	6.15	4.71	23.42
18..	Rye: 25 bushels (1 acre)..	1847–48	1894–95	5.25	4.30	18.10
25..	Turnips: 350 bushels (1 acre).................	1855	1895	25.63	23.36	8.88
6..	Carrots: 30 tons (1 acre)..	1855	1895	30.61	29.96	2.13
15..	Peas: 20 bushels (1 acre) field peas.............	1856	1895	6.66	6.76	Percentage of Increase 1.56
23..	Tobacco: 1,500 pounds (1 acre) Spanish seed leaf...	1853	1895	25.85	27.99	8.28
22..	Tobacco‡: By hand, 1,200 pounds; by machine, 1,250 pounds (1 acre)...	1844	1895	.74	2.67	261.42

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* See note to table on page 165.

† The data have been modified to show a comparison on the basis of equal quantities produced. If the equal areas be taken instead, the line should read: Cotton: By hand, etc., \$9.23; \$9.42; 2.09.

‡ The data have been modified to show a comparison on the basis of equal quantities produced. If the equal areas be taken instead, the line should read: Tobacco: By hand, etc., \$8.88; \$33.39; 276.33

The estimated cost of producing these crops by machine method is only 53.7 per cent of the estimated cost of producing the same crops by hand method. In other words, the saving in cost of production amounts to 46.3 per cent. The average date of the hand method investigations made use of in this presentation is 1850; the average date for the machine method investigations is 1895—a difference of forty-five years. Surely it will not be too much to say that during the last half of the nineteenth century the cost of production of these crops was reduced by one-half. If we take into account the decreased cost to the farmer of food and lodging for his hired workmen and the decreased cost of storage room for grain in the straw, then the total saving must appear to be even greater than this.

46. RELATIVE INCREASE OF CAPITAL AND EMPLOYEES IN MANUFACTURING

All Manufactures in the United States

	1850	1860	1870	1880	1890	1900	1910	Percentage Increase 1910 over 1850
Average per establishment—								
Product	$8,280	$13,420	$13,420	$21,100	$28,070	$25,418	$76,993	830
Capital	$4,330	$7,190	$6,720	$10,960	$19,020	$19,269	$68,638	1,485
Number of employees	7.7	9.3	8.1	10.6	13.8	10.4	25.0	225

Iron and Steel

	1850	1860	1870	1880	1890	1900	1910	Percentage Increase 1910 over 1850
Number of establishments	468	542	726	699	699	668	654	40
Average product	$43,600	$97,000	$275,000	$419,000	$683,000	$1,203,500	$2,119,000	4,760
Average capital	$46,700	$82,000	$161,000	$295,000	$591,000	$858,000	$2,282,000	4,787
Average number of employees	53	65	103	197	250	333	426	704

47. SOME SOURCES OF THE SUPPLY OF CAPITAL[1]

The Census Bureau gives fairly complete data as to the wages and incomes of those engaged in manufacturing and in some other industries. This enables us to make a rough estimate of the earnings or income of the people of the United States. By leading industries this estimate is as follows:

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[1] From *The Wall Street Journal*, January 13 and 10, 1912.

Industry	Persons Employed	Wages and Salaries	Earnings for Distribution
Manufacturing	7,405,313	$4,365,613,000	$2,219,472,000
Railroads	1,662,550	1,170,432,400	744,775,000
Mining	851,438	574,720,650	338,626,296
Merchandizing	2,072,112	1,191,464,400	921,366,392
Banking	358,808	430,569,600	215,285,277
Agriculture	12,561,936	2,300,993,068	2,412,855,450
Other occupations	10,558,265	5,329,848,660	3,627,199,400
	35,470,422	$15,363,641,778	$10,479,519,815

Wages and salaries, in the aggregate, are 50 per cent larger than the total net earnings available for distribution, notwithstanding that we have included with the latter the net earnings of farmers and planters, which, in a majority of cases, might, with equal logic, be classed with wages and salaries. Small farms are in the majority, and their owners as a rule earn no more than a high wage, or a fair salary.

One of the surprising features disclosed by the financial history of 1911 is the large amounts of new capital raised by railroad and industrial corporations in face of a general decline in earnings. When margins of profit are narrow and net earnings unusually small one would naturally suppose that supplies of new capital would be limited; but it is evident that the amount of new financing actually done last year was greater than that accomplished during any previous year since 1901.

In the following exhibit is displayed the contrast between new capital raised on the one hand and railroad and industrial earnings on the other.

	New Financing Done	Railroad Net (I. C. C. Figures)	Earnings of 30 Industria Companies
1911	$1,739,487,720	$881,219,144	$315,000,000*
1910	1,518,272,579	940,076,364	365,435,284
1909	1,681,620,680	828,122,822	337,413,083
1908	1,423,199,371	787,882,414	318,200,752
1907	1,393,913,300	900,567,262	384,550,204
1906	1,637,013,350	848,836,771	356,302,339
1905	1,238,978,000	742,993,486	300,883,399

* Partly estimated.

In 1908 the amount of new capital raised increased in face of declining earnings; but the divergence was in part due to the fact that the earnings here given are in general for fiscal years, whereas the financing done is for calendar years. Moreover, the amount of capital raised in 1907 had declined as one would naturally expect. In 1911, however, the earnings of both calendar and fiscal years showed marked declines, and yet the amount of new capital raised increased more than $220,000,000, as compared with a gain of less than $30,000,000 in 1908.

It is particularly surprising that the supply of investment funds should be so large in a year when railroad net earnings shrank 6.1 per cent, industrial earnings about 13.8 per cent, and agricultural earnings more than 9 per cent. Nor should it be overlooked that our total borrowings of European capital last year are estimated at only about $173,200,000, as compared with $340,500,000 the previous year. Almost beyond a doubt the explanation lies in the reinvestment of an unusually large proportion of the dividends and interest received by stock and bondholders, like insurance companies, and in the large accumulation of savings or "capital" by our great wage-earning and salaried classes. Wages and salaries greatly exceed dividends and interest; and a moderate increase in frugality on the part of these classes would seem a sufficient explanation.

48. CAPITAL—DEMAND AND SUPPLY[1]

London, May 31.—The year 1913 promises to exceed all others in amount of new capital raised in this country. Indeed, the quantity of new securities is so vast that underwriters and others have begun to call a halt.

The amount of new capital which this country can provide for new securities (apart from the capital needed for buildings and private enterprises) at the present time is, according to the *Statist*, somewhere about £220,000,000 a year, and no surprise need be felt that underwriters are becoming less and less keen to take new securities, seeing that the amount placed in five months has been nearly £150,000,000. It is, of course, possible, that a much larger amount than an additional £70,000,000 may be subscribed before the end of the year, but in that case the instalments on the new issues must be extended well into 1914.

In recent years, continues the *Statist*, the amount of new capital annually subscribed in this country has somewhat exceeded £200,000,000. The subscriptions have by no means been regularly spread over the various parts of each year. Sometimes the amounts placed in the early part of the year have been large; at other times they have been small during that period. On some occasions the subscriptions are heaviest in the last quarter. Last year the total subscriptions reached £211,000,000 for the year, of which about one-half was raised in the first five months. In the period to the end of May of this year the subscriptions have been nearly £150,000,000, in comparison with £104,000,000 last year and £110,000,000 in 1891. In considering the amount of capital placed in the five months just ended we must not forget that the subscriptions in the last five months of 1913 were abnormally small, amounting to only £50,000,000, and that the instalments on loans placed last year which had to be paid in the early part of the present year were unusually light. Still, when all the circumstances are taken into account, it is obvious that the issues of new securities are heavier and faster than can be easily absorbed, and it is probable that after the end of June a halt will be

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[1] From *The Journal of Commerce and Commercial Bulletin*, 1913.

TABLE I

PURPOSES FOR WHICH CAPITAL WAS SUBSCRIBED IN THE UNITED KINGDOM IN THE FIRST FIVE MONTHS OF THE LAST TWO YEARS

Description of Security	First Five Months	
	1913	1912
Government	£44,393,031	£8,021,332
Municipal	12,075,516	9,466,946
Railways	47,123,220	28,621,346
Banks	1,944,965	3,020,000
Breweries	....	75,000
Commercial, industrial, etc.	19,126,323	15,096,625
Electric light and power	2,103,028	4,092,354
Fin., land, investment and trust	5,614,322	6,481,350
Gas and water	892,410	702,000
Insurance	132,430	132,500
Iron, coal, steel, and engineering	2,895,964	4,166,605
Mines	1,829,550	3,087,823
Motors and motor manufacturing	488,750	131,812
Nitrate	110,000	....
Oil	1,446,100	2,087,781
Rubber	816,094	1,664,040
Shipping	2,102,993	8,023,812
Tea and coffee	109,750	97,100
Telegraphs and telephones	592,000	2,614,970
Tramways	3,594,000	6,629,232
Total*	£147,390,450	£104,217,628

*[NOTE.—The arithmetical discrepancies occur in the original table (*Statist*, May 31, 1913).—EDITORS.]

called until October in order that the accumulations of securities in the hands of the underwriters may be disposed of.

In May, 1913, the new issues have reached the large total of about £38,500,000, in comparison with £29,000,000 in May last year and £24,000,000 in May, 1911. Of the £38,500,000 subscribed for this month no less than £17,000,000 had been for government loans, consisting of £10,670,000 for Brazil and £6,675,000 for China. An exceptionally large amount of capital has been asked for by miscellaneous undertakings of various kinds and descriptions.

TABLE II

DESTINATION OF CAPITAL SUBSCRIBED IN THE UNITED KINGDOM IN THE FIRST FIVE MONTHS OF THE LAST TWO YEARS

	First Five Months	
	1913	1912
United Kingdom	£22,871,317	£25,021,776
India and Ceylon	2,902,467	3,222,818
British Colonies	58,701,120	25,582,782
Foreign countries	62,915,546	50,390,252
Total	£147,390,450	£104,817,628

The purposes for which capital was raised in the United Kingdom for the five months are shown in Table I.

Three-fourths of the new capital subscribed has been for foreign countries and the bulk of the remainder has been for the United Kingdom. The destination of the capital subscribed in May and in the first five months of the past two years is shown in Table II.

Referring to the causes for the high rates that railroads and other large corporations are being forced to pay for funds, Henry Clews in his current market letter says:

"The controlling influence in the stock market is the money situation. By this is meant not so much the lack of ordinary loaning facilities, as serious inroads upon the available supply of capital. There is plenty of what is technically known as money in the country, but the demands for both credit and capital have been extraordinary for several years. This is a world-wide phenomenon. International trade has been running upon an unprecedented scale. Industrial development has progressed marvelously in all parts of the world, and the strain upon capital thus induced was seriously aggravated by the losses and hoardings of the Balkan war. We have been turning capital, which comes from savings only, from fluid into fixed forms with excessive rapidity, the result being temporary scarcity and high rates. In the United States the situation has been aggravated by home conditions. Trade was very active, and there followed a considerable expansion of credit. The home requirements for capital have been enormous. They have been held in restraint somewhat by recent high interest rates—the usual warning against excess. It is well known that many important issues are still pending for industrial, railroad, and municipal or state purposes. These high rates forced a readjustment of market values to new conditions, and the low rates at which some of the new issues, notably St. Paul and Baltimore & Ohio, have been placed, focused public attention upon the difficulties of the situation."

49. WHAT IS MEANT BY DEPRECIATION[1]

Depreciation is a comparatively new phrase in railroad accounting, and, judging from the articles which have appeared on the subject, there seems to be some confusion as to just what is meant. Does depreciation mean the loss of value in a car or an engine due to wear and tear? If so, this sort of depreciation is amply covered by proper maintenance; in other words, it is usual when an engine or car goes into the repair shop, whether damaged in an accident or by legitimate wear, to replace its worn-out or damaged parts and restore it to its original condition. Repairs are classed as "running repairs," by which are meant the repairs necessary to keep equipment in safe running condition; and "general repairs," by which are meant the repairs needed to restore the equipment to its original condition. There are plenty of cases on roads both in this country and in Europe, where locomotives and cars are so well maintained that there is no appreciable depreciation. Indeed, locomotives are running on English roads which are, though obsolete in many respects, as good as new, though fifty years old; and there are many cases upon roads in this country where engines and cars twenty-five years old have been so well maintained that they are as good as when originally built.

In respect to buildings and other structures, their ultimate life depends entirely upon the character of maintenance and care.

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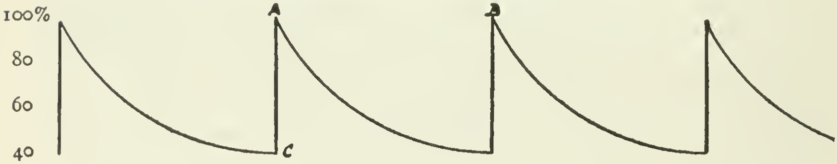
[1] Adapted from F. A. Delano, "The Application of a Depreciation Charge in Railway Accounting," *Journal of Political Economy*, XVI, 586–90 (November, 1908).

Wooden buildings well roofed and painted, repaired when necessary, will last indefinitely, and of course, structures of masonry or iron are even more permanent. Buildings and structures on railroads are rarely discarded except because they have outlived their usefulness, and something of a more efficient type is needed in their place.

From the foregoing it will be seen that if by depreciation is meant the loss due to wear and tear, it may be illustrated as to each piece of equipment or each building or structure, by a mathematical curve something like that indicated in the accompanying Diagram I. The distance from "A" to "B" represents the period of time in which under normal conditions the deterioration takes place; in the case of locomotives, say three years; in the case of passenger cars, say two years; in the case of freight cars, a very variable quantity, averaging perhaps three years; in the case of buildings and structures, depending wholly on the character of the building and structure, climatic conditions, etc. The distance from "A" to "C" represents the diminution in value due to wear and tear down to the point where it becomes necessary to make extensive repairs. This is one view of what is meant by depreciation.

Diagram I

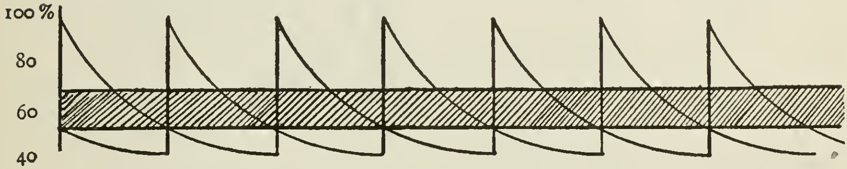
Curve illustrating condition of equipment, buildings, or structures over a long period of time. Space along vertical lines represents value of equipment, etc. Space along horizontal lines represents time interval



Another view of depreciation is that it represents the amount by which the average condition of the physical property has deteriorated below the original or new condition. It is assumed that each piece of physical property on the railroad, other than the real estate, is depreciating in value in the way represented by the curve already drawn, but that because the railroad is a composite of an immense number of units, the average condition of all the separate units combined is represented by a line at some point between the upper and lower nodes of this curve. Obviously, this will vary a little bit on the different roads according to the personal equation of management, local conditions, etc., which in turn are affected by good or bad business conditions. A corporation differs from an individual only in degree. In good times, expenditures for maintenance are liberally made: in hard times all expenditures of this kind which can be safely postponed necessarily cease. If then by depreciation is meant the drop from the original cost down to the average-condition value of equipment, buildings or structures, it is evident that there is a line, or more accurately, a band or zone somewhere between 100 per cent value and the 50 per cent value, and this band, speaking very liberally, will be somewhere between 60 per cent and 75 per cent of the original cost. It is obvious, however, that when the lower limit of this band which represents the average condition of the units is reached, depreciation does not continue farther, and that therefore if a regular fixed charge is to be made to cover this alleged loss of value the charge should cease at that point as the limit of actual depreciation of the units considered as a whole has been reached.

Diagram II

The result of composite curves similar to those shown below is a line or more strictly a band or zone representing *average* condition



Still a third view of depreciation is that it means the depreciation due to "obsolescence." It is argued that while each piece of equipment or every building or structure may be restored to its original condition, there is a diminution in value, due to obsolescence. Every manufacturer, as well as every corporation, fully appreciates this. In a country which is developing rapidly it is frequently necessary to discard perfectly good equipment, buildings, and structures, and to replace them with something more efficient. It is possible that conditions will warrant "writing off" the cost of such equipment or structures and charging to cost of operation the entire cost of renewal with more modern and more efficient tools or equipment. It may be argued that this is the kind of depreciation which it is the business of the railroad to provide for by monthly charge in its operation. The difficulty is to estimate the rate at which such depreciation takes place.

To illustrate it, we may represent such a depreciation as this by a mathematical curve for each piece of equipment, building, and structure, as shown in Diagram III. The difference between the curve in Diagram III and that of Diagram I lies in the fact that Diagram III shows a depreciation due to obsolescence, whereas Diagram I does not. In III we make a line "A—D," which is at a slight angle to the horizontal. It represents the *rate of depreciation* due to obsolescence. It contemplates that every time a unit of equipment, a building or a structure, is restored to a condition "as good as new," it is not brought back to a value equal to that represented by its original cost, but to a value as much less than its original cost as the depreciation due to obsolescence may have brought it. To provide for this sort of depreciation it is obviously necessary to determine the rate of depreciation due to obsolescence. Who shall say? Shall we be guided in the future from the results in the past? Shall we say in respect to locomotives that because locomotives are now as high, as wide, and perhaps as long as they may be built, there can be no further developments in that direction? Or, shall we accept the arguments of those who believe in electric transportation, that the steam locomotive will soon be discarded and the electrically driven motor take its place? In one case, the rate of depreciation due to obsolescence will be small, while in the other case, it can be determined only by our surmise as to how soon the revolution from steam to electricity is going to take place.

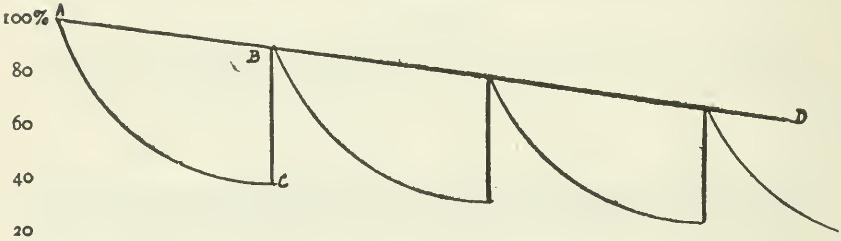


DIAGRAM III

Diagram showing condition of equipment, buildings, and structures as in Diagram I, but taking into account depreciation due to obsolescence

RATE OF DEPRECIATION DUE TO OBSOLESCENCE

50. INROADS OF WAR ON THE SAVABLE FUND[1]

It would seem desirable at this point, now that all feeling in regard to the subject from its bearing on political questions has apparently passed away, to place upon record the exact cost of the war, as nearly as the same can be determined. With this object attention is asked to the following exhibit:

The amount of outstanding national indebtedness March 7, 1861, was $76,455,299.28.

During the four years of war which terminated in April, 1865 (April 1, 1861, to April 1, 1865), the actual receipts of the treasury, were as follows:

From internal revenue	$314,337,317.01	
From customs	280,861,618.45	
From lands	1,812,083.80	
From direct tax	4,668,259.31	
From miscellaneous sources	74,120,413.37	
Total receipts		$675,799,691.94

The receipts of revenue from April 1, 1865, to June 30, 1869, inclusive, during which period the larger portion of the expenditures has been directly in consequence of the war, were as follows:

From internal revenue	$967,207,221.41	
From customs	729,991,875.97	
From lands	7,402,188.28	
From direct tax	9,017,217.30	
From miscellaneous sources	194,949,122.13	
Total receipts		$1,908,576,625.09

The amount of outstanding indebtedness, less cash and sinking fund in treasury, June 30, 1869, was $2,489,002,480.58.

Deducting from this the amount of outstanding indebtedness at the outbreak of the war ($76,455,299.28), we have, as the sum borrowed for war purposes and not repaid out of the receipts above indicated	$2,412,547,181.30
making the total expenditure (loans and receipts) in eight and a quarter years of war and its effects	$4,996,914,498.33
Deducting the amount which, but for the war, might be taken as the average expenditure of the government during this period, say $100,000,000 per annum	825,000,000.00
We shall have	$4,171,914,498.33

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[1] From the *Report of the Special Commissioner of the Revenue* (1869), pp. iv–vi

which sum represents the cost of the war to the United States government down to June 30, 1869.

To this sum should be added the value of the pensions now paid by the government on account of the war, if the same were capitalized. This at eight years' purchase of the present annual payment, would amount to about *two hundred millions.*

But this aggregate, however large, must still further be increased by other items if we would reach the true cost of the war to us as a people, the above representing only the expenditures of the national government.

These additional charges are substantially as follows:

Increase of state debts, mainly on war account........	$123,000,000.00
County, city, and town indebtedness increased on account of the war (estimated)..................	200,000,000.00
Expenditures of states, counties, cities, and towns, on account of the war, not represented by funded debt (estimated).................................	600,000,000.00
Estimated loss to the loyal states from the diversion and suspension of industry, and the reduction of the American marine and carrying trade..............	1,200,000,000.00
Estimated direct expenditures and loss of property by the Confederate states by reason of the war........	2,700,000,000.00

These estimates, which are believed to be moderate and reasonable, show an aggregate destruction of wealth, or diversion of industry, which would have produced wealth in the United States since 1861 approximating *nine thousand millions* of dollars—a sum nominally in excess of the entire increase of wealth, as returned by the census for the whole country from 1850 to 1860.

This, then, was the cost of the destruction of slavery; the cost of compromise; the cost of the unfaithfulness of those who founded this nation to the idea by which the nation lives. What does it measure? It is substantially a thousand millions a year for nine years; or at the wages of five hundred dollars a year, the labor of two millions of men exerted continuously during the whole of that period. It is three times as much as the slave property of the country was ever worth. It is a sum which at interest would yield to the end of time twice as much as the annual slave product of the South in its best estate.[1]

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[1] [Cf. in this connection the charts showing federal expenditure and the national debt (Selections 239 and 242).—EDITORS.]

VI. THE ORGANIZATION OF INDUSTRY

A. SPECIALIZATION

51. LIMITATIONS OF THE DIVISION OF LABOR[1]

The division of labor, as all writers on the subject have remarked, is limited by the extent of the market. It can only be advantageously carried to the extent which will produce the quantity demanded. The extent of the market may be limited by several causes: too small a population; the population too scattered and distant to be easily accessible; deficiency of roads and water carriage; or, finally, the population too poor, that is, their collective labor too little effective, to admit of their being large consumers. Indolence, want of skill, and want of combination of labor, among those who would otherwise be buyers of a commodity, limit, therefore, the practicable amount of combination of labor among its producers. In an early stage of civilization, when the demand of any particular locality was necessarily small, industry flourished only among those who by their command of the sea-coast or of a navigable river, could have the whole world, or all that part of it which lay on coasts or navigable rivers, as a market for their productions. The increase of the general riches of the world, when accompanied with freedom of commercial intercourse, improvements in navigation, and inland communication by roads, canals, or railways, tends to give increased productiveness to the labor of every nation in particular, by enabling each locality to supply with its special products so much larger a market, that a great extension of the division of labor in their production is an ordinary consequence.

The division of labor is also limited, in many cases, by the nature of the employment. Agriculture, for example, is not susceptible of so great a division of occupations as many branches of manufactures, because its different operations cannot possibly be simultaneous. One man cannot be always ploughing, another sowing, and another reaping. A workman who practiced only one agricultural operation would be idle eleven months of the year. The same person may perform them all in succession, and have, in almost every climate, a considerable amount of unoccupied time. To execute a great agricultural improvement, it is often necessary that many laborers should work together; but in general, except the few whose business is superintendence, they all work in the same manner. A canal or a railway embankment cannot be made without a combination of many laborers; but they are all excavators, except the engineer and a few clerks.

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[1] Adapted from John Stuart Mill, *Principles of Political Economy*, Book I, chap. viii.

52. THE TIN-PEDDLER AND THE DEVELOPMENT OF CONNECTICUT INDUSTRIES[1]

Among the factors that have promoted industry in New England one is usually overlooked, namely, the service rendered by the Yankee tin-peddler in marketing the products of the manufacturing plants.

In Connecticut few places outside the rich river valleys where the first colonists had settled gave adequate return for the efforts of farmers in tilling the thin, rocky soil. The settlers were thus compelled to find employment other than farming, or to emigrate to lands more generously endowed by nature. One of the earliest breaks from the traditional occupation of agriculture was the manufacture of tinware. This industry was introduced at Berlin, Conn., in 1740, by two Irish immigrants, the brothers William and Edward Pattison, who imported sheet tin from England and worked it into kitchen utensils at their Berlin home. Since all tinware had previously been imported, and was very expensive, the brothers' cheaper articles found ready sale. When their home market had been supplied, they began the practice of making journeys on foot to near-by settlements, with their wares carried on their backs in a sack. The success of these ventures induced other Berliners to make tin and carry it to neighboring colonies. At first the journeys were made on foot, then on horseback, and finally in an ingeniously arranged wagon. As the country opened, and turnpikes and canals were built, the peddler's wagon traveled farther and farther from home. Gradually a distributing organization was perfected that reached every village and remote hamlet.

As an industry, tin manufacturing was too simple to become very important, although it continued in Connecticut until 1850. But the selling organization built up for tin was very important because it provided an adequate outlet for other industries in which the manufacturing processes were not simple, and which employed more and more men at home. It was in building up these industries that have been permanent valuable assets to the state, by enabling the products of the industries to reach their markets, that the peddler's great service was rendered. Lack of transportation was the greatest natural throttle to early American manufacturing. Carrying charges soon ate up any profits an industry might have, and limited it to a very narrow local field. However, if those products were small in bulk, with a relatively high value and a brisk demand, transportation difficulties were solved by placing the articles in the hands of the peddler. If there had been no peddler there would have been no way for the producers of the goods to reach the consumers, and hence no production.

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[1] Adapted from a note by R. Malcolm Keir in *The Journal of Political Economy*, XXI, 255 (March, 1913).

Today the peddler is seldom seen. Railroads and cross-country trolley freight lines have driven him out of existence. In remote communities occasionally he may be met. In his time he rendered the service of transportation agent and salesman, linking scattered consumers to producers and giving to incipient manufacture the opportunities of a widened market.[1]

53. CLASSIFICATION OF OCCUPATIONS

The following schemes of classification, from the *Index to Occupations* issued by the United States Bureau of the Census, indicate the method of classification which has been adopted for the Census of 1910.

I. Industries and Industrial Groups[2]

(A) extractive industries

I. Agriculture, Forestry, and Animal Husbandry:
  - Agriculture
  - Forestry
  - Animal husbandry

II. Extraction of Minerals:
  - *Mining*
    - Coal mines
    - Copper mines
    - Gold and silver mines

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[1] [On this topic see also Selection 74: "Widening of the Market Through Improved Transportation."—Editors.]

[2] From the *Classified Index to Occupations*, Thirteenth Census of the United States (1910), pp. vi–viii.

- Iron mines
- Lead and zinc mines
- Other mines
- Mine workers (mine, not specified)

Quarrying

- Quarries (stone, cement, sand, clay, etc.)

Production of salt, oil, and natural gas

- Production of salt
- Production of oil and natural gas

(B) INDUSTRIES OF TRANSFORMATION, TRANSPORTATION, AND TRADE

III. MANUFACTURING AND MECHANICAL INDUSTRIES:

Building trades

- (Listed as building and hand trades under Miscellaneous industrie

Chemicals and allied products

- Fertilizer makers
- Paint makers
- Powder, cartridge, dynamite, fuse, and fireworks makers
- Soap makers
- Other chemical workers

Clay, glass, and stone products

- Brickmakers
- Potteries
- Tile makers
- Glass
- Terra-cotta workers
- Lime, cement, and gypsum
- Marble and stone cutters

Clothing

- Clothing makers (suits, coats, cloaks, and overalls)
- Clothing makers (other than suits, coats, cloaks, and overalls)
- Corset makers
- Glove makers
- Hat makers (wool or felt)
- Shirt, collar, and cuff makers

Food and kindred products

- Bakeries
- Butter and cheese makers
- Candy
- Fish curers and packers
- Flour and grain mills
- Fruit and vegetable canners, picklers, and preservers
- Slaughter and packing houses

  - Sugar makers and refiners
  - Other food preparers
- *Iron and steel and their products*
  - Agricultural implements
  - Automobile factories
  - Car and railroad shops
  - Foundries and metal working
  - Iron and steel mills
  - Ship and boat building
  - Wagons and carriages
  - Other iron and steel workers
- *Leather and its finished products*
  - Harness and saddle makers and repairers
  - Leather-belt, leather-case, and pocketbook makers
  - Shoes
  - Tanneries
  - Trunk makers
- *Liquors and beverages*
  - Breweries
  - Distilleries
  - Other liquor and beverage workers
- *Lumber and its remanufacture*
  - Box makers (wood)
  - Furniture
  - Pianos and organs
  - Saw and planing mills
  - Other woodworkers
- *Metals and metal products except iron and steel*
  - Brass mills
  - Clock factories
  - Copper factories
  - Gold and silver workers
  - Jewelry factories
  - Lead and zinc factories
  - Tin-plate factories
  - Tinware factories
  - Watch factories
  - Other metal workers
- *Paper*
  - Box makers (paper)
  - Makers of blank books, envelopes, tags, paper bags, etc.
  - Paper mills
  - Pulp mills

Printing and bookbinding
  Printing and publishing establishments
Textiles
  Carpet mills
  Cotton mills
  Dyeing and finishing textiles
  Hemp and jute mills
  Knitting mills
  Lace and embroidery makers
  Linen mills
  Print works
  Rope and cordage factories
  Sail, awning, and tent makers
  Silk mills
  Woolen mills
  Worsted mills
  Not specified textile workers
Miscellaneous industries
  Broom and brush makers
  Button makers
  Charcoal and coke burners
  Cigars
  Electric light and power companies
  Electrical supplies
  Gas works
  Oil works
  Rubber factories
  Straw workers
  Tobacco
  Turpentine distillers
  Building and hand trades
  Other miscellaneous industries and occupations
  Workers in "Not specified" manufacturing and mechanical industries

IV. TRANSPORTATION:
Water transportation
  Water transportation
Road, street, and bridge transportation
  Construction and maintenance of streets, roads, sewers, and bridges
  Livery stables
  Truck, transfer, cab, and hack companies
  Street railways
Transportation by railroad
  Transportation by railroad

- *Express companies*
  - Express companies
- *Post, telegraph, and telephone*
  - Post
  - Telegraph and telephone
- *Other persons in transportation*
  - Other persons in transportation

V. TRADE:
  - Banking and brokerage
  - Insurance
  - Real estate
  - Wholesale and retail trade
  - Elevators
  - Stock yards
  - Warehouses and cold-storage plants
  - Other persons in trade
  - Clerical assistants

(c) SERVICE

VI. PUBLIC SERVICE (NOT ELSEWHERE CLASSIFIED):
- *Public administration*
  - Federal officials and employees
  - State officials and employees
  - County officials and employees
  - City or town officials and employees
- *Public defense and maintenance of law and order*
  - National defense
    - Army
    - Navy
  - Maintenance of law and order
    - United States marshals
    - County sheriffs
    - City marshals
    - Constables
    - Detectives
    - Guards in parks, prisons, public institutions, and public buildings
    - Policemen
    - Probation and truant officers
    - Watchmen

VII. PROFESSIONAL SERVICE:
  - (Whole class)

VIII. DOMESTIC AND PERSONAL SERVICE:
  - Occupations not in industries
  - Laundries and laundry work

II. Division of Labor within a Typical Industry—Cotton Mills[1]

Manufacturers and proprietors
Officials
Managers and superintendents
Foremen and overseers
Clerks
Apprentices
Back boys
Ballers
Banders
Beaders
Beamers
Bobbin boys
Breaker hands
Card clothiers
Card fixers
Card grinders
Card strippers
Carders
Carpenters
Chainers
Cleaners
Cloth balers
Cloth cutters
Cloth menders
Cloth steamers
Combers
Cotton shakers
Creelers
Designers
Doffers
Doublers
Drawers-in
Drawers and drawing-frame tenders
Dressers
Drillers
Dryers
Dyers
Engineers
Filling carriers
Finishers
Folders
Harness brushers
Harness makers
Helpers
Inspectors
Jack-frame tenders
Laborers
Lappers
Loom fixers
Machinists
Nappers
Oilers
Packers
Pickers
Piecers
Pressmen
Printers
Quillers
Reelers
Ribbers
Roll coverers
Rollers (cloth)
Ropers
Rovers
Roving-frame tenders
Scrubbers
Section hands
Sewers and Seamers
Shearers
Sizers
Slasher tenders
Slubber tenders
Sorters
Spare hands
Speeders
Spinners
Spoolers
Spool fixers
Stampers
Starchers
Sweepers
Trimmers
Twisters
Warpers
Washers
Weavers
Winders
Wrappers
Yarn pourers
Other occupations
Not specified

The several occupations as shown in Classification II are subject to still further division.

Thus the item "Laborers" is subdivided as follows:

Day laborer, cotton mill
General hand, cotton mill
Laborer, bleaching (cotton)
Laborer, cotton mill
Laborer, cotton waste
Laborer, finishing company (cotton)
Laborer, gingham mill (cotton)
Laborer, room, cotton mill
Laborer, thread mill (cotton)
Laborer, wadding mill (cotton)
Opener, cotton bale
Trucker, cloth, cotton mill
Trucker, cotton mill

It is estimated that the Census *Index* designates in the aggregate between 7,000 and 8,000 distinct occupations.

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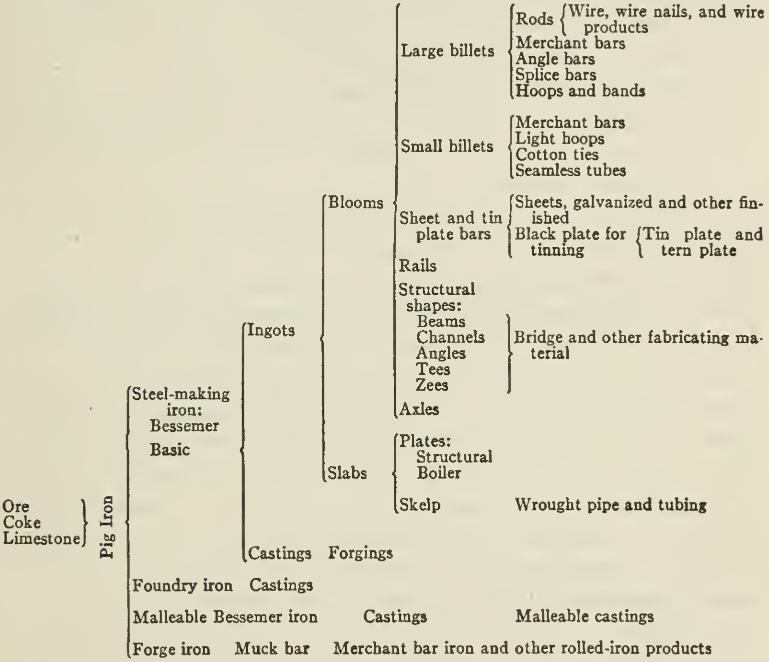
[1] From the *Classified Index to Occupations*, Thirteenth Census of the United States (1910), pp. 211–18.

54. STAGES IN THE PRODUCTION OF IRON AND STEEL PRODUCTS[1]

An idea of the sequence of the stages in the production of iron and steel commodities may be obtained from the following diagram:



55. THE LOCALIZATION OF MANUFACTURING INDUSTRIES[2]

Some of the various advantages which influence the localization of industries may be stated as follows: (1) nearness to materials; (2) nearness to markets; (3) water-power; (4) a favorable climate; (5) a supply of labor; (6) capital available for investment in manufactures; (7) the momentum of an early start; (8) the habit of industrial imitation; (9) economic advantages of specialized centers.

1. *Nearness to materials.*—The localization of several of the industries illustrates this advantage—the paper industry near the spruce

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[1] From the *Report of the United States Commissioner of Corporations on the Steel Industry*, Part III (1913), p. 13.

[2] Adapted from the *Twelfth Census of the United States* (1900), Vol. VII, pp. ccx–ccxiv.

and poplar forests; the tanning industry near the chief tanning materials; slaughtering and meat-packing near the stock-raising centers; the manufacture of agricultural implements near the great hardwood forests and the iron-producing centers; the pottery industry near its clay; the recent growth of cotton manufacturing near the cotton fields; and the beginnings of shoe manufacturing in Massachusetts near the supply of leather.

Fuel is regarded, for census purposes, as a material of manufacture, and the influence of its supply is very marked in the localization of the glass industry near the natural gas wells, and in the iron industry in Pennsylvania and Alabama.

2. *Nearness to markets.*—This is an important factor in the localization of all industries, its influence upon the localization of manufacturing in general being especially apparent. Nearly 48 per cent of the manufacturing of the country is in Massachusetts, Connecticut, Rhode Island, New York, New Jersey, and Pennsylvania—not so much because there is better water-power or more abundant material for manufactures in these states, but very largely because the greatest population was there when the manufacturing developments of the country began. The influence of the market in causing a migration of manufacturing in general may be observed by comparing the movement of the center of manufactures and of the center of population since 1850. The center of manufactures has moved steadily westward, following roughly the movement of the center of population.

Eight of the fifteen selected industries[1] are localized east of the Alleghenies, chiefly because they became established in this section at a time when it was the only important market in the country. In certain of the industries the influence of the market upon the localization has been especially marked, i.e., the iron and steel industry in Illinois, the manufacture of agricultural implements, the paper and pulp manufacture, and the jewelry and silk industries.

Nearness to materials and nearness to markets, in so far as these expressions are used with reference to an effect upon localization, mean more than mere geographical distance. They include the general accessibility to materials or markets, affected as this is by the supply or lack of good and cheap means of communication. Waterways have thus had a tremendous influence upon the localization of industries, for they have allowed localities through which they passed to make an early start in manufacturing, and by the momentum thus acquired to retain their prominence in many cases, even after the building of railroads has removed the special advantages which they at first possessed.

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[1] These industries are: (1) agricultural implements; (2) boots and shoes, factory product; (3) collars and cuffs; (4) cotton goods, including small cotton wares; (5) fur hats; (6) glass; (7) hosiery and knit goods; (8) iron and steel; (9) jewelry; (10) leather gloves and mittens; (11) leather, tanned, curried, and finished; (12) paper and wood pulp; (13) pottery, terra cotta, and fire-clay products; (14) silk and silk goods; (15) slaughtering and meat-packing, wholesale.

It is evident, moreover, that the importance of the two advantages just explained varies greatly among the several industries according as their products are easily and cheaply transportable or are transported only with great difficulty and at a great expense. In all industries where the product is not transportable, such, for example, as the construction of houses, the market controls the localization absolutely. It is plain, also, that the power of materials and market over industry is less, just in proportion as the materials and products are more easily and more cheaply shipped. From the manufacturer's standpoint it is always a counting of the costs of shipment. If these are heavy, the industry tends to locate where the amount of transportation will be least, but if they are light, the influence of materials and market is so slight that it often disappears altogether. The words "heavy" and "light," as used in this connection, are not to be understood in an absolute sense, but relative to the value of the material or product transported. A cheap and heavy raw material, such as clay, will be carried only a very short distance. Transportation charges, after a few hundred miles, would constitute too large a part of the cost of manufacture. But an equal weight of this same clay after its value has been trebled by being converted into pottery might be carried a long distance before the shipping costs would become prohibitory.

3. *Water-power.*—This has been in the past a very important advantage, but today its influence upon localization of industries is not very apparent. Naturally, this influence was greatest before the days of steam. All industries requiring power grouped themselves along those waterways which had a good natural fall. This early impetus, combined with forces to be described later, has tended to perpetuate such industries in their original locations, even when steam has become more important, as a source of power, than water.

It is interesting in this connection to compare the manufacture of cotton goods with the manufacture of shoes. Power has been applied to some branches of the cotton manufacture for more than a hundred years, while shoe manufacturing has been a power industry less than half that time. Largely as a result of this fact, water supplies 31 per cent of the power used in the cotton industry today, and but 4.6 per cent of that used in the manufacture of shoes. That is to say, the localization of both industries began in the early days, but the manufacture of shoes, being for years a hand industry, was independent of water-power, while the cotton manufacture, of necessity, sought the waterways. When the necessity for power in the shoe manufacture arose, the industry was too thoroughly established away from the sources of water-power, and recourse was had to steam. Water-power has been an important factor in the localization of three of the other industries specified above—silk goods, hosiery, and knit goods, and the pulp manufacture.

4. *A favorable climate.*—This has also an influence which is discernible in the localization of industries. The influence of a moist climate, which is also even throughout the day, upon cotton spinning in New Bedford and Fall River, Mass., is a conspicuous instance. More often, however, the advantage of a favorable climate makes itself felt through its invigorating effect on labor.

5. *A supply of labor.*—Two other advantages must be mentioned, for there are times when they have considerable weight. These are the supply of labor and the supply of capital and credit facilities. The "supply of labor" is something far from mobile. It is very human, with all the attachments of home and friends. It can be easily lured into a new industry which is established "at home" or near by, but the wages paid must be considerably greater to attract it into other sections. Manufacturing industries tend, therefore, to become established in a section where there is a good supply of labor. The New England towns have been pre-eminently of this type. All about them were farms which had reached the point of exhaustion, and could therefore employ profitably only a small part of the rising generation. The surplus labor thus created gravitated naturally to the nearest town in search of employment, and the early development of numerous manufactures was thus made easy. For opposite reasons there can be no extensive manufacture in those parts of the West where the increasing population is mostly absorbed in agriculture, which is still incompletely developed.

6. *A supply of capital.*—It is almost equally important to have a supply of local capital. Although most large enterprises are now financed from the great financial centers, the plants are located usually in places which have already become industrial centers in a smaller way through the efforts of the people there, and by means of their money. The cotton mills which are springing up through the South just now illustrate the tendency of a town to own itself in the early stages of its industrial life, and Fall River affords a most remarkable illustration of the perseverance of this tendency. A prosperous town, therefore, where the people are "making money," is, in so far, a favorable locality for the establishment of manufacturing industries of some sort. Outside capital will undoubtedly be solicited, but it will be obtained more easily and more surely after the people themselves "have taken largely of the stock." Banking facilities exert a similar influence, making the community's capital more available for investment than it would otherwise be. All of these considerations have operated to favor the early development of manufacturing centers in New England and the Middle Atlantic states, agriculture absorbing a large share of the available local capital in the southern and western states. One of the causes which led to the establishment of the cotton manufacture in New Bedford about 1850 was the supply of local capital set free about that time by the decline in the whaling industry.

7. *The momentum of an early start.*—The various advantages which have been described thus far can be expressed in dollars and cents. The places possessing these advantages attract manufacturers on account of the comparatively low cost there of producing and marketing goods. But these advantages, in almost all cases, account for localization only in its broader sense. They prescribe an industry's possible area, but they fail to explain the most marked form of localization—that within a single city or town, or group of cities and towns.

Somewhere within the possible area—made such because of the advantages just described—an enterprising man started the pioneer establishment of a certain industry. Why was this place chosen rather than any other within the possible area? Or why was this industry chosen rather than any other for which this place was suited? This is the first problem, and the second follows naturally: Why, after the first factory had become established, was it to the advantage of competitors to choose the same spot for their establishments, rather than other localities within the possible area? The solution of the first problem in the case of any industry is to be found by reference to its early history in this country.

In most cases it will be found that the original establishment of an industry in a locality was largely a matter of chance. The shoe industry in Lynn, Mass., is a case in point. In the early colonial days this settlement had its quota of cobblers, who made as well as repaired the shoes for the region thereabout, but did not attempt a broader market. In 1750, however, John Adams Dagyr, a Welshman and a skilled shoemaker, settled in Lynn, and began to teach his apprentices the art of fine shoemaking. It soon became known that shoes were being made in Lynn nearly as good as the best made abroad, and as early as 1764 Dagyr was spoken of in a Boston newspaper as "the celebrated shoemaker of Essex." Had this man settled in Roxbury, Mass., rather than Lynn, the bias toward shoe manufacturing might have become established in that quarter, and Roxbury instead of Lynn might today be one of the three great shoe centers of the United States.

The nature of many a city's industry has been shaped in just this way, in the early days of its history, by the decision of one man. Instances of this might be cited in connection with the localization of collars and cuffs, hosiery and knit goods, jewelry, gloves, and fur hats.

The decision of the pioneer in an industry at a given point rests on various grounds. He establishes usually an industry with which he is familiar because of experience obtained elsewhere. Several of the above selected industries have been established in their respective localities by the emigration from Europe of individual skilled workmen or groups of skilled workmen. The town where such a man chances to settle is taken for a location of the industry, in most cases, without much questioning whether or not it is better adapted for it than any other town. But if he searches for a suitable place, his chance acquaintance with one locality, or the offer of a friend to assist him if he establishes there, often influences his decision at the expense of another and perhaps more suitable locality where he has never visited, or where no acquaintance appeared to offer inducements. In many instances towns offer inducements to manufacturers, such as exemption from taxation for a period of years, and such efforts have often been successful in building up an entirely new industry in the town.

But, if the industry is to be perpetuated and to increase in the locality, the original establishment must succeed, for it is the influence of its success which causes other establishments to spring up around it. In the early history of every industry numerous enterprises fail, not so much because of the unfitness of the locality chosen, as because of the unfitness of the man who attempts to carry on the industry at that point.

8. *The habit of industrial imitation.*—It is only after the first enterprise has succeeded in any locality that the real localizing process begins. The mainspring of this process is the habit of industrial imitation—a habit as powerful as it is universal, and so important in this connection that it warrants a somewhat closer analysis.

It has been shown above that one of the normal requisites of an industrial locality is a good supply of local labor and local capital. Suppose the enterprising man establishes himself in such a community and succeeds there. His success proves that the economic conditions are favorable—that he is within the possible area of that industry. But it does more, it creates a local bias toward this particular industry. This bias affects all three classes necessary to its expansion: entrepreneurs, capitalists, and laborers.

In the first place entrepreneurs naturally choose the existing industry rather than establish a new one. On the assumption of a prosperous and growing town, there is continually arising a class of enterprising men who wish to embark in manufacturing for themselves, and they naturally choose an industry with which they are familiar—one which they have actually seen succeed. It requires courage to be an industrial pioneer; more courage, in fact, than most men possess. They have read, perhaps, of much larger profits being made in branches of manufacturing not carried on in their neighborhood; they may have visited towns in another part of the country where some such industry has been very successful, and they are tempted to establish this industry in their town, rather than to imitate the establishment which has been operating there successfully. The chances are great, however, that they will resist the temptation of larger profits in favor of what they regard as surer profits, and will choose the local industry. The other industry may be just as safe, but the probability of success, if they follow the beaten path, has been emphasized to them each day as they have watched the smoking chimney of the local factory, and have noticed the rise of the proprietor from moderate circumstances to comparative affluence. Their choice of this industry becomes, therefore, almost inevitable. Moreover, it is probable that the men who thus launch out for themselves have been employees or foremen in the local factory. They are relatives, perhaps, of the proprietor, and are familiar with all the details of this industry, while in any other they would have all to learn. This last feature has been illustrated in fully half of the industries specified above.

In the second place, the capital needed to finance the new establishment—in addition to that supplied by the new entrepreneur himself—is much more easily obtained if the new establishment is to produce the same line of goods as the one already in existence. If a loan is desired for the establishment of an outside and less familiar industry, there is naturally a raising of the interest rate as a means of insurance; or the stock, if offered for sale, will for the same reason sell at a lower figure.[1]

In the third place, the best grade of local labor prefers to have employment in an industry which seems to offer a future rather than in one which seems in the nature of an experiment. This influence is comparatively slight, however, for all ordinary labor takes such employment as is offered without much questioning.

9. *Economic advantages of specialized centers.*—All the above decisions—the decision of the pioneer in the industry, and the decisions of the few who follow immediately in his steps—seem to be made with but little consideration of the economic advantages which the locality chosen may possess for carrying on the industry in question, i.e., the possibility of producing cheaper at this point than elsewhere, or being better able there to market the products. Very quickly, however, certain decided economic advantages emerge. Workmen, skilled in the specialty for which the center begins to be known, flock there and wait their chance "to be taken on at one of the mills." In many cases an immigration of skilled labor from corresponding centers abroad sets in. East Liverpool, Ohio, was at one time chiefly an English town as the result of such immigration. A pool of specially

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[1] The opposition of the manufacturer or the manufacturers already established in the industry must, however, be counted on in many cases, especially if the products made are for sale in a comparatively limited market. As far as such opposition seems likely to develop, the advantage above described is counteracted, local investors becoming doubtful regarding the safety of their money under such circumstances.

skilled labor is thus formed which acts as a powerful inducement to the expansion of the industry from within, while at the same time it draws prospective manufacturers to this center from without.

The use of machinery has, however, tended to lessen the importance of a specially skilled labor supply. In proportion as an industry becomes automatic, its localization becomes independent of its supply of special labor. It is interesting to note in this connection that six of the fifteen industries selected for study on account of their marked localization are industries in which handwork constituted for many years the most important part of the operations. In some instances, such as the glove, collar, and hat manufacturing, handwork is still an important factor, while in the manufacture of boots and shoes handwork persisted to a large extent as late as 1870.

In a specialized community of this sort the contact of workmen and employers with each other results in a mutual improvement in manufacturing methods. Laborers "talk shop" more or less when not at work, and the devices adopted in one establishment for making the work easier are soon adopted in all. Similarly, it is easy for a manufacturer in such a place to note the experiments with patented improvements carried on in another establishment, and to adopt such improvements just as soon as their value is demonstrated, by paying the royalty demanded.

In the course of time another advantage arises in such a specialized center—the possibility of subdividing the processes of manufacture among several establishments—a division of labor among employers. In the Massachusetts shoe cities, for example, there are establishments which make only uppers, and others which make only "findings" (counters, shanks, heel stiffeners, etc.). Soon, also, subsidiary industries spring up for the supply of the special machinery and tools required. As a result, new and up-to-date tools and machinery may be had in such centers with the least possible delay, and existing machinery may be kept continually in repair.

Thus a town's specialization increases its supply of specialized labor and specialized machinery. These, in turn, react to increase the specialization of the town. Success breeds success in an almost geometrical ratio. Cause and effect propel each other in a continually expanding circle, the self-created local advantages becoming in time so powerful that they entirely neutralize the greater general advantages of location which other localities may have come to possess.

56. THE DIVISION OF LABOR IN PIN-MAKING[1]

To take an example, therefore, from a very trifling manufacture, but one in which the division of labor has been very often taken notice of, the trade of the pin-maker; a workman not educated to this business (which the division of labor has rendered a distinct trade), nor acquainted with the use of the machinery employed in it (to the invention of which the same division of labor has probably given occasion), could scarce, perhaps, with his utmost industry, make one pin in a day, and certainly could not make twenty. But in the way in which this business is now carried on, not only the whole work is a peculiar trade, but it is divided into a number of branches of which the greater part are likewise peculiar trades. One man draws out the wire, another straights it, a third cuts it, a fourth points it, a fifth grinds it at the top for receiving the head; to make the head requires two or three distinct operations; to put it on is a peculiar business, to whiten the pins is another; it is even a trade by itself to put them into the paper; and the important business of making a pin is, in this manner, divided into about eighteen distinct operations, which, in some manufactories, are all performed by distinct hands, though in others the same man will sometimes perform two or three of them. I have seen a small manufactory of this kind where ten men only were employed, and where some of them consequently performed two or three distinct operations. But though they were very poor, and therefore but indifferently accommodated with the necessary machinery, they could, when they exerted themselves, make among them about twelve pounds of pins in a day. There are in a pound upward of four thousand pins of a middling size. Those ten persons, therefore, could make among them upward of forty-eight thousand pins in a day. Each person, therefore, making a tenth part of forty-eight thousand pins, might be considered as making four thousand eight hundred pins in a day. But if they had all wrought separately and independently, and without any of them having been educated to this peculiar business, they certainly could not each of them have made twenty, perhaps not one pin in a day; that is, certainly, not the two hundred and fortieth, perhaps not the four thousand eight hundredth part of what they are at present capable of performing, in consequence of a proper division and combination of their different operations.

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[1] From Adam Smith, *The Wealth of Nations*, Book I, chap. i.

[For a description of modern machine methods in pin-making see Selection 42.—EDITORS.]

57. DIVISION OF LABOR IN MEAT PACKING[1]

Notwithstanding the high skill required, the proportion of skilled workmen in the butchers' gang is very small, owing to a minute division of labor. It would be difficult to find another industry where division of labor has been so ingeniously and microscopically worked out. The animal has been surveyed and laid off like a map; and the men have been classified in over thirty specialties and twenty rates of pay, from 16 cents to 50 cents an hour. The 50-cent man is restricted to using the knife on the most delicate parts of the hide (floorman) or to using the axe in splitting the backbone (splitter); and, wherever a less skilled man can be slipped in at 18 cents, 18½ cents, 20 cents, 21 cents, 22½ cents, 24 cents, 25 cents, and so on, a place is made for him, and an occupation mapped out. In working on the hide alone there are nine positions, at eight different rates of pay. A 20-cent man pulls off the tail, a 22½-cent man pounds off another part where the hide separates readily, and the knife of the 40-cent man cuts a different texture and has a different "feel" from that of the 50-cent man. Skill has become specialized to fit the anatomy.

In this way, in a gang of 230 men, killing 105 cattle an hour, there are but 11 men paid 50 cents an hour, 3 men paid 45 cents, while the number getting 20 cents and over is 86, and the number getting under 20 cents is 144, as follows:

Typical Crew of Cattle Butchers and Helpers

Rate of pay per hour	No. of men at rate
50 cents	11
45 "	3
40 "	5
32½ "	6
31½ "	2
30 "	2
27½ "	4
26½ "	6
25 "	6
24 "	1
22½ "	16
21 "	4
20 "	20
18½ "	5
15 to 18 cents	139
Average 21 Total	230

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[1] From John R. Commons, "Labor Conditions in Meat Packing and the Recent Strike," in *The Quarterly Journal of Economics*, XIX, 3-4.

58. DIVISION OF LABOR IN THE SHOE-MAKING INDUSTRY[1]

In the cutting-room the parts which form the upper are cut out. For the best goods this is done with a hand knife. For the less expensive classes of leather, and for linings and gussets—which are usually cut from cloth—a die is used. The *die-cutters* are also called *block-hands, dinkers*, and *clickers.* A *skiver* works in the fitting- or stitching-room, and skives or cuts to a bevel in a skiving machine the edges of the pieces for the uppers. *Cementers* or *pasters* put cement on the skived surfaces which *folders* fold over and stick together by pressure either in a machine or by hand, thus producing a finished instead of a raw edge. *Upper-stitchers* include all workers on sewing-machines in the fitting-room, whether on leather or linings. An *eyelet-row stitcher* puts stitching on the quarter, just outside the place where the row of hooks and eyelets will be. A *closer* stitches or closes the quarters together at the back, and a *seam-rubber* or *seam-pounder* smooths this seam by rubbing or pressing it out as flat as possible on a machine. A *gore-* or *gusset-stitcher* stitches in gores or gussets such as appear in congress boots. A *lining-stitcher*, *lining-maker*, or *liner* sews together the different pieces of the lining, and a *closer-on* or *in-seamer* stitches the lining into the quarters. When the vamps are lined separately a *vamp-liner* does the work. On fine work a *lacing-stitcher* binds the lining with a facing of leather. A *beader* operates a machine of the same name which presses together the seam made around the top of the quarters by closing on. A *top-stitcher* or *corder* runs stitching around the quarters just below this seam, through the quarter and lining. A *buttonhole-machine operator* puts the quarters for button shoes through her machine, which makes a cut, lays a heavy cord around the edge, and stitches over the cord and through the edge, making a buttonhole. The *buttonhole-finisher's* machine sews down that part of the heavy cord which passes from buttonhole to buttonhole. The buttons are sewed on by hand or by machine, or are fastened on with wire staples. A *gang-punch operator* punches the holes for eyelets in laced shoes. An *eyeleter* or *fastener-setter* sets in the eyelets with an eyeleting machine. A *hooker* puts in the hooks with a hooking machine. A *marker* or *tip-marker* marks on the vamp the place where the tip is to go, and a *tipper* or *tip-stitcher* stitches it on; sometimes a *tip-paster* pastes or gums the tips onto the vamps before they are stitched. A *perforator* perforates the edges, and a *tip-fixer* glues down or otherwise adjusts them. A *vamp-closer* stitches the two ends of the vamp together behind. A *vamper* sews together the quarters and vamps. A *barrer* or *stayer* stitches back and forth through the edges of the two quarters. A *heel-stay stitcher* and an *eyelet-stay stitcher* put on heel stays and eyelet stays, respectively, after the lining has been closed on. A *fancy stitcher* is employed on some work to do stitching, which serves merely as decoration. A *foxing stitcher* sews to the back of the vamp of some shoes a piece of leather called a foxing. On fine work, a *tongue-binder* binds the edges of the tongues with cloth or leather; the tongues are stitched into place by *tongue-stitchers*. A *strap-maker* makes leather straps for ladies' slippers, or straps by which shoes are pulled onto the foot. *Table workers* are unskilled operatives who do such work as gumming or pasting, tip marking, and sewing on buttons, by hand, at tables in the stitching-room.

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[1] Adapted from the U.S. Census Special Report on *Employees and Wages* (1903), pp. 1199–1201.

In the sole-leather room, the parts which are to form the bottom of the shoe are made. These parts are: outsoles, half soles, and inner soles; heels, composed of heel lifts and top lifts; and shanks. Each of these parts is cut by a cutter designated by the particular part he cuts, the work being done with dieing-out machines like those used in the cutting-room. The *outsole-cutter* takes a side of sole leather and cuts the best parts of it into outsoles; what cannot be used for these goes to the *half-sole cutter*, then in turn to the *inner-sole*, *top-lift*, and *heel-lift cutters*. *Sole-cutters* and *top-lift cutters* have to use good judgment in deciding what parts of a side of leather are fit for the different soles and for the top lifts. A *stock-sorter* selects the stock for the various orders, an occupation requiring skill acquired only by long experience. A *rander* makes the rand—a horseshoe-shaped piece of leather used to make the heel fit the curve of the shoe bottom. A *splitter* runs the soles through a splitting machine, which reduces them to a uniform thickness by splitting a thin slice from the flesh side. A *rounder* rounds them in a rounding machine. A *channeler* cuts a groove or channel in the outsoles and inner soles a short distance inside the edge. A *stock-wetter* or *damper*, by immersing the leather in water for a short time, brings it to the temper required for the successful cutting of the channel. The stitching of the soles is done through the floor of this channel, the leaf of leather made in cutting the channel having been turned back out of the way of the needle by a *channel-turner*. A *sole-skiver*, working with a skiving or scarfing machine, skives the back edges of the half soles, which are to lie between the outsoles and the inner soles, so that they shall fit the angle where these come together. A *feather-edger* skives the shanks of the outer sole. *Stock-fitter* is a general term for an operative who does any of several operations in fitting the soles and heels. A *half-sole fitter* cements the half sole to the outsole. A *sole-molder* places the soles one at a time on the metal form of a molding machine, molding them into the shape required for the finished shoe. A *roller* passes the soles between heavy steel rollers, which compress and level them. A *heel-maker* or *tacker* assembles the several heel lifts, with the exception of the top lift, presses them together in a heel-building machine, and drives a few tacks through them. A *heel-compressor* molds them into shape in a powerful machine. In the poorer grades of shoes the heel is made of scrap leather and leather board or pulp. The composite material, called pancake, is made by an operative, usually a girl, called a *pancake-maker*. A *counter-cutter* cuts out on a machine the counters which keep the back of the vamp in place; a *counter-skiver* skives their edges, and a *counter-molder* with a powerful machine shapes them between steel forms. A *shank-cutter* cuts with a die that part of the shank which is composed of leather or leather board.

The uppers and the several parts which form the bottoms are brought together in the making- or bottoming-room. A *bottomer* is any operative occupied with any of the operations in the bottoming of a shoe. A *puller-over* fastens an inner sole with one or two tacks to the bottom of a last. Then, taking an upper, he inserts the counter and box toe in their places under the lining and draws the upper over the last. A *laster* is a skilled man who, with the aid of a lasting machine, pulls the upper down over the inner sole evenly and firmly, and tacks it all the way around the sole. A *shanker* tacks the shank in place, cuts away the superfluous upper leather gathered under the toe, beats the edge of the upper out as flat as possible wherever it is gathered, and draws out the tacks which hold the inner sole to the last. If a shoe is to be made by the Goodyear or welt system, a *Goodyear welter* or *welt-sewer* sews on a welt around the bottom of the shoe. A *welt-butter* butts or joins welts on Goodyear and hand-sewed shoes. A *joiner* joins the ends of the welt when it is run around the heel. A *sole-filler* fills the space inclosed by the welt, which would form an air space if the outsole were put on immediately, with a piece of tarred felt, or with a paste of ground cork and cement. A *sole-layer* or *stocker* lays the outsole in cement on the bottom of the shoe and firmly presses it in a machine. A *Goodyear stitcher* sews the outsole to the welt. A *rough rounder* operates a machine of the same name, which cuts down the outsole to the shape of the last. After the stitching a *channel-cementer* brushes cement into the channel. A *leveler* or *beater-out* then presses down the leaf of the channel by rubbing over it a piece of steel and, by pressing out or leveling the bottom in a machine, gives the sole the shape it is to take in the finished shoe.

The shoe now has all its parts. The rest of the work in the making-room consists in trimming the edges of the soles and heels and preparing them for the finishing. For the sake of clearness, the operations on the soles will be considered consecutively, then those on the heels. An *edger* or *edge-trimmer* trims smooth the forepart edges or edges of the sole on a revolving cutter. A *prick-stitcher* brings into prominence the stitches on the surface of the projecting sole, using a small machine with which little grooves are impressed between the stitches. A *heel-slugger* drives into the heel a row of steel or brass nails. A *heel-trimmer* or *shaver* trims or shaves the curved edge of the heel. A *heel-scourer* sandpapers the heel, the sandpaper being attached to the circumference of a wheel. A *heel-breaster* cuts smooth the front of the heel with a knife driven by a foot lever. In the bottom-finishing room a *bottom-sander*, *buffer*, *scourer*, or *cuffer* sands, buffs, or scours the bottoms of the soles and heels with a revolving roll covered with sandpaper. *Naumkeag-machine* operators, with a Naumkeag machine, treat the shanks in the same way. *Blackers* include all who blacken, paint, or stain the top, edges, or bottom of shoes in the final processes. An *edge-blacker*, a boy, applies blacking or ink to the edges with a brush. An *edge-setter* sets the edges with a block of steel cut to fit the edge and heated by gas or by friction. A *heel-blacker* blacks the edge of the heel. A *bottom-* or *shank-blacker* or *painter* blackens or paints the soles, the bottoms of the heels, and the shanks. A *burnisher*, *shank-burnisher*, or *shank-fakir* burnishes the better class of blacked bottoms by rubbing them with a heated hand iron. A *bottom-finisher* polishes both painted and blacked surfaces with revolving, cloth-covered rolls and revolving brushes. On some shoes, *bottom-gummers* place a thin coat of gum solution before the last polishing, thus giving a smooth hard finish. *Stamping-machine* operators, impress a name, trade-mark, or design of some kind on the soles of many shoes. A *wheeler* runs a small cogged wheel around the upper edge of the heels of most shoes and the soles of many, thus leaving the imprint of its cogs.

In the upper-finishing and packing-room a *treer* puts the shoe on a horizontal form and applies a paste dressing to the upper, rubbing it in thoroughly with a stick. A *dresser*, *brusher*, or *polisher* dresses and polishes the shoes with revolving power brushes. A *cleaner* cleans the kid uppers of men's and women's fine shoes with water on the revolving brush, and then nearly all are ironed while on a tree by an *ironer* who rubs a hot iron over them, in order to make them stand up and give them form. All these operatives are collectively called *finishers*. A *sock-liner* puts in the sock and heel linings, which are pieces of thin leather or cloth gummed to the inside of the shoe bottom. A *stringer* or *lacer* laces the shoes, or a *buttoner* buttons them. *Inspectors* look over the finished shoes, and *wrappers* wrap them in paper and place them in paper boxes or cartons. *Labelers* paste on the carton labels, *packers* put the goods in cases, and they are shipped by *shippers*. A *bench-hand* is a hand sewer at a bench, or one who does any hand mending or repairing that is necessary. In this category are *cobblers*, *toe-repairers*, *hand heel-shavers*, etc.

B. MANAGEMENT

59. THE PROBLEM OF THE BUSINESS MAN

The statement that the great majority of business enterprises result in failure is sufficiently startling, but it is not a statement which is likely to be questioned by anyone who really appreciates the complexity of the problem of the business man. One way of stating that problem is to say that all business consists of two elements: production of goods and marketing of goods. This descriptive classification in itself conveys a considerable idea of complexity to anyone who has seen any of the modern literature on Scientific Management, or who has seen a portion of the material on scientific methods of distribution. There is, however, an analytical method of stating the business man's task which serves to bring out more clearly its complexities. The problem may be regarded as primarily the mechanical problem of combining labor, capital, natural resources, and directive skill in advantageous proportions. But this primary problem is indefinitely complicated by the fact that the advantageous proportions of labor, capital, etc., are constantly changing and indeterminate as a result of the operation of the laws of price and in consequence of progressive methods.

The mechanical problem alone is exceedingly complex, as is sufficiently implied by a mere statement of the law of diminishing returns in its universal application. If a business man were told, "Take any grade or grades of land in any quantity you choose, take any grade or grades of labor in any quantity you choose, take any of the present forms of capital in any quantity you choose, and set up an organization which will be of maximum efficiency," his problem would be formidable although in attacking it he could secure expert guidance from the mechanical engineer, for after all, this arrangement of the productive factors is primarily a matter of mechanics. Yet however intricate the original mechanical problem may be, it suggests but the beginning of the complications in which the business man finds himself. He is not able to take any grade of land in any quantity he chooses; he may not select any grade of labor in any quantity he chooses; he may not utilize any existing form of capital in any quantity he chooses, but in every case, the element of price enters, and he is forced to ask himself such questions as these: "Will this grade of land for which I must pay x dollars be better for me than that grade of land for which I must pay y dollars? Shall I use this grade of labor at this given price, or would it be better for me to use another grade of labor at a different price? Shall I use this particular machine at this price, or shall I use one of the other scores of machines which will be furnished me at different prices?" And after he has reached some solution to these questions, he learns that price is again the significant consideration when he comes to disposing of his product. In all of these price intricacies, the business man is pretty much the victim of circumstances. Unless he has monopoly power, he has as an individual very little to say concerning the price at which he may secure any factor of production; and still less to say concerning the price at which he may dispose of his product.

Still further complicating the business man's intricate mechanical problem, shot through and through as it is with the variable factor of price, we must recognize another variable: the influence of progress in industrial or commercial methods. Changes in methods may influence and very likely will influence practically all of the other variables in the problem. They may be changes which the business man has brought about from an intensive study of his own business. They may be changes which are forced upon him by inventions of new equipment. They may be changes forced upon him by some revolution in the methods of production or of marketing his goods. The chances are that here also he will be the victim of circumstances. He will as an individual have little influence in determining the course of events, but the slightest misjudgment of the actual course of events means for his business only one possible outcome: failure.

60. PROBLEMS OF FARM MANAGEMENT[1]

- PROBLEMS OF FARM MANAGEMENT
  - Preliminary problems, or problems of investment
    - How to get land
      - Purchase
      - Lease
        - Cash
        - Share
    - What to produce
      - Principal product
        - Staple crop
        - Specialty
      - Diversification
        - Competing crops
        - Noncompeting crops
          - For time of farmer
          - For fertility of soil
      - Scheme of rotation
    - Scale of production
      - Large scale
      - Medium scale
        - Economies of skill
        - Economies of machinery
        - Economies in buying and selling
        - Geometrical advantages
        - Seasonal advantages
        - Temperamental advantages
        - Social advantages
        - Technical disadvantages
      - Small scale
    - Kind of equipment
      - Power
        - Animal
          - Oxen
          - Horses
          - Mules
        - Mechanical
          - Wind
          - Water
          - Steam and electricity
          - Explosive engines
      - Live stock
      - Machinery
      - Buildings
  - Administrative problems
    - Supervision of work
    - Determination of times and seasons
    - Management of live stock
    - Keeping accounts
  - Marketing problems
    - Buying
      - What to buy
      - From whom to buy
        - From producers
        - From middlemen
      - How to buy
        - Individually
        - Co-operatively
      - With what to buy
        - Cash
        - Credit
          - Store credit
          - Bank credit
          - Co-operative credit
    - Selling
      - Staple crops
        - When to sell
          - Holding crops for a rise in price
          - Selling when harvested
          - Selling in advance of harvest
        - To whom to sell
          - Consumers
          - Middlemen
        - How to sell
          - Individually
          - Co-operatively
      - Agricultural specialties
        - Advertising
        - Exhibiting
        - Selling by sample

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[1] From T. N. Carver, *Principles of Rural Economics*, p. 223. Ginn & Co., 1911.

61. THE PRINCIPLES OF BUSINESS ORGANIZATION[1]

In defining business organization, we must not take for our unit of measurement a complete modern corporate institution. We must go back of this to the two fundamental elements governing all business transactions between members of the human race. These two elements we can class simply as "producing" and "selling." Any individual or any body of individuals doing either one or both of these things becomes a business organization. Joining together these two primal elements there is a third element which becomes a most important factor in any business. This can be described under the title of "accounting" or "reckoning." When a farmer raises a bushel of turnips, takes them to market, sells them and records the transaction in the back of the family almanac, he has performed all the functions of a business organization.

HOW CONTROL IS VESTED AND EXERCISED IN BUSINESS

Turning now from the analysis of the functions of a business to an examination of its sources of authority, we find a variety of methods in which control may be exercised. In every organization there is an ownership element which constitutes its primal authority and control. Fundamentally, the form of this ownership is of no material importance, whether it is vested in an individual, in a partnership or in a corporation of stockholders. The essential fact is that this ownership constitutes the fountain head of all business organization, and subordinate to this authority, however it may be vested, are ranged the three departments of production, accounting and selling, by which the purposes of the owning power are put into effect. The form of any business organization so far as developed up to this point can be illustrated in a simple diagram such as shown in Form 1, on p. 208.

Such an organization is characteristic and complete. It applies to any business enterprise, whether the yearly volume of business is numbered in three or eight figures. The corner groceryman who constitutes his own business organization performs all the functions of the great department store. He becomes the "production" division when he buys his goods from the wholesaler and prepares them for the shelves. He becomes the "sales" division when he writes a price card to put in the window and sells some of the goods to a customer over the counter, and he becomes the "accounting" division when he goes to his desk and makes an entry of the sales in his order or cash book. At the same time he is exercising these offices by power of the appointment received at his own hands as owner.

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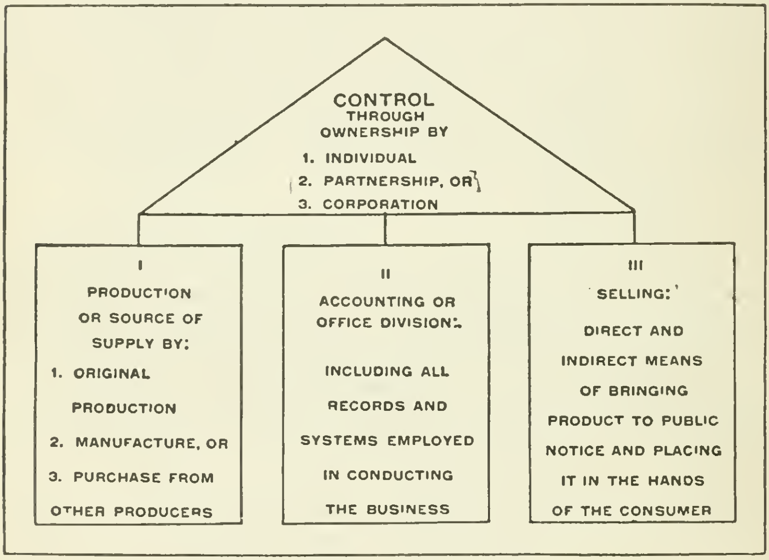
[1] Adapted from *Business Administration*, pp. 13–29. The System Co., 1909.

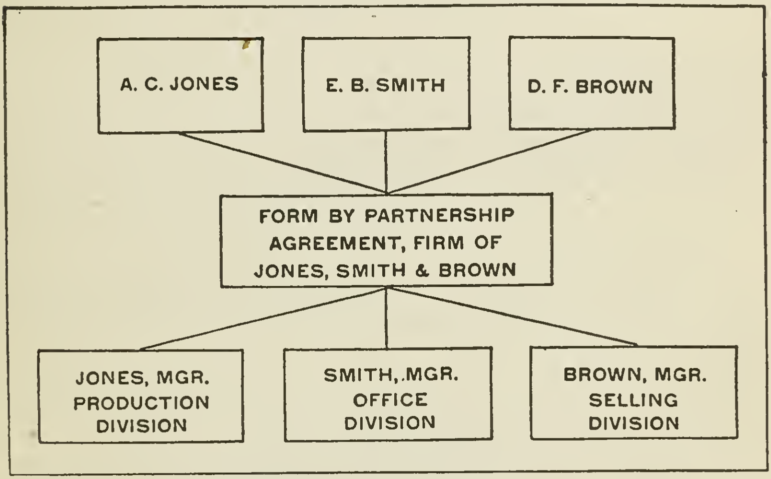
When ownership is vested in one individual, the matter of control and authority is of the simplest form. The owner may have a factory manager, an office manager and a sales manager, but all three divisions are under his absolute control and dictation. It is possible that the individual owner may arrange his organization so that he need not give it his actual personal supervision and yet retain a cohesive and co-operative administration. This can be done by forming an executive committee made up of his division managers, who, while retaining their respective positions in the organization, will be bound by united action of the committee on all important matters of business policy, the owner delegating his control to such a committee under general instructions.



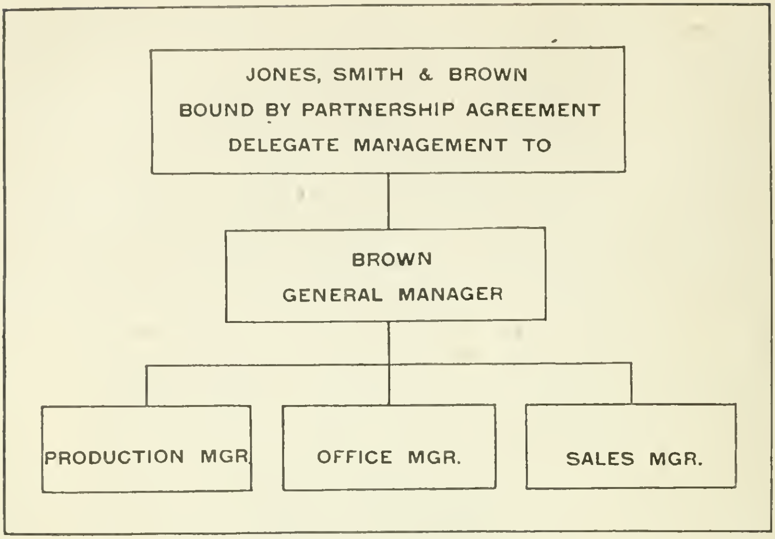
Form 1.—The factors fundamental in any business are here represented. Producing, accounting, and selling are the three indispensable mercantile activities, over which control is exercised by some form of ownership.

HOW A PARTNERSHIP IS FORMED

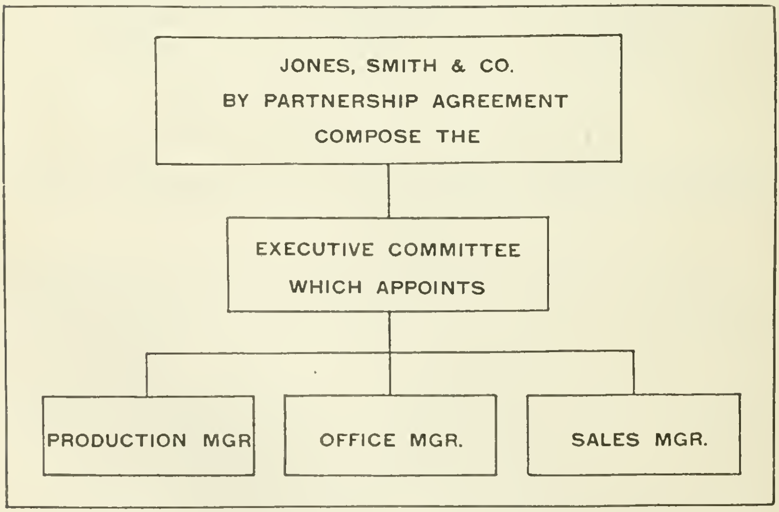
In a partnership, two or more individuals are bound into one controlling factor by a certain partnership agreement. This agreement is in legal form and should be of the most exact, detailed and binding character to avoid any misunderstandings, or complications. This legal partnership becomes in reality the controlling ownership in itself and the members of the firm are circumscribed by its provisions. The partnership agreement defines the shares that each member of the firm shall have in the conduct of the business, his duties, the voice that he shall have in deciding any matters of policy. It determines the division of profits, the proportionate assessment for losses, and the manner and methods by which the business shall be conducted. The agreement may also provide for a receivership or sale of the respective interests in case of vital disagreement among the partners. In the matter of determining the control of the business, the partnership agreement may provide for a division of duties and of authority among the various partners (Form 2), or delegate the entire management to one of the partners (Form 3), or all the members of the firm may form an executive committee under whose general control and authority the division managers carry on the business (Form 4). It is frequently the case that some member of the firm is a "silent partner," known to the world only under the title "and Company."


A. C. JONES
E. B. SMITH
D. F. BROWN
FORM BY PARTNERSHIP AGREEMENT, FIRM OF JONES, SMITH & BROWN
JONES, MGR. PRODUCTION DIVISION
SMITH, MGR. OFFICE DIVISION
BROWN, MGR. SELLING DIVISION

Form 2.—This chart and the two which follow represent three common methods of business control exercised through a partnership. In this case, three partners put their capital together and manage their own business, each member of the firm taking charge of one department.



FORM 3.—In this partnership arrangement, two members of the firm are not actively engaged in the business. By a general agreement, the third member is placed in entire charge, with authority to appoint his assistants, at the head of the three branches of the work.



FORM 4.—In this partnership scheme, one or more silent partners are represented by the word "Company." The members of the firm here exercise general appointing power and oversight, while delegating everyday control to their chosen managers.

In Form 4 it will be noted that the managers of the producing, accounting and selling divisions are given the actual working or operative authority over the business, under guidance of a committee made up of the partners of the firm.

Owing to the various advantages of a corporation, such a form of ownership is best adapted to modern business conditions. Such ownership also permits a more systematic and cohesive organization and more successful co-operation of the working parts because of the definiteness of its control and its accurate and fairly defined limits of authority.

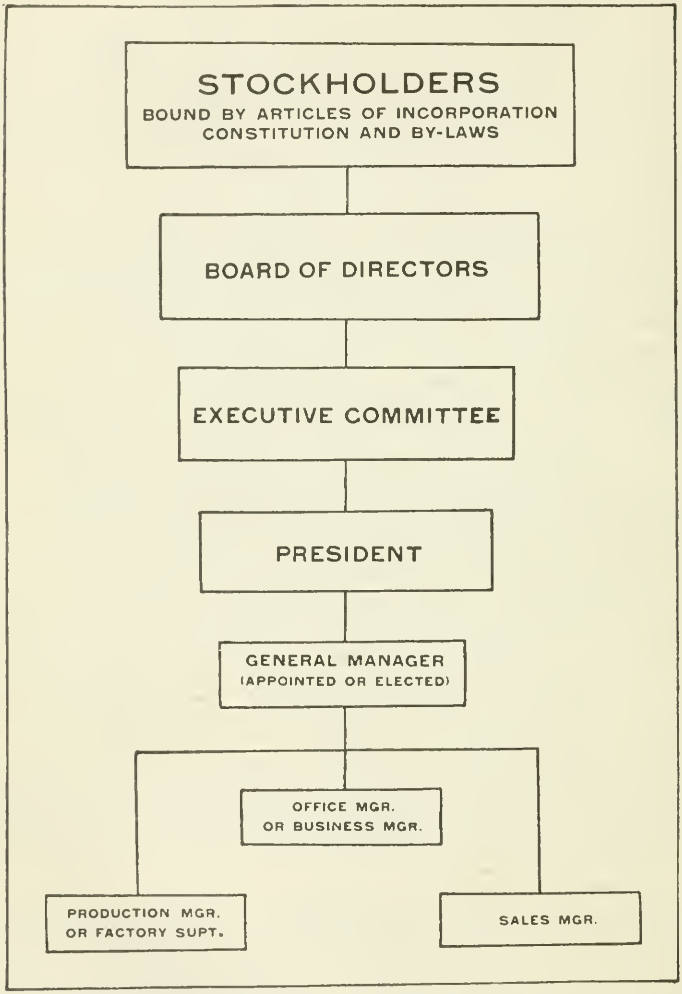
In a corporate organization, ownership is vested in the stockholders of record, and these stockholders are bound by the stock subscription list, the articles of incorporation and the constitution and by-laws. These documents provide for the election of a board of directors, an executive committee and various officers, to whom the administration of business is thus delegated by vote of the stockholders. Form 5 shows the analysis of a corporate organization.

FORMATION OF AN INCORPORATED STOCK COMPANY

The process of forming an incorporated stock company is somewhat complex and varies in different states. The general plan, however, is based on a stock subscription list to which those who wish to become stockholders attach their signatures, specifying the number of shares for which they subscribe. Heading this subscription list is the form agreement stating the purposes of the organization, its name, the amount of capital stock, and the par value of each share. After the required amount of capital has been subscribed, a stockholders' meeting is held, at which a constitution and by-laws are adopted and directors are elected who subsequently choose the officers. The amounts subscribed having been paid in, in whole or in part, the state charter of incorporation may then be obtained and the company may commence business.

The board of directors may arrange the further details of organization as it sees fit, but it frequently transfers its authority largely to the president, who may become the general manager. Or any director or an outside individual may be appointed by the directors as general manager and given full authority, subject to the board. The board may elect an executive committee to which its authority is delegated, and in some cases another committee is chosen as an advisory committee, at the head of which stands the general manager

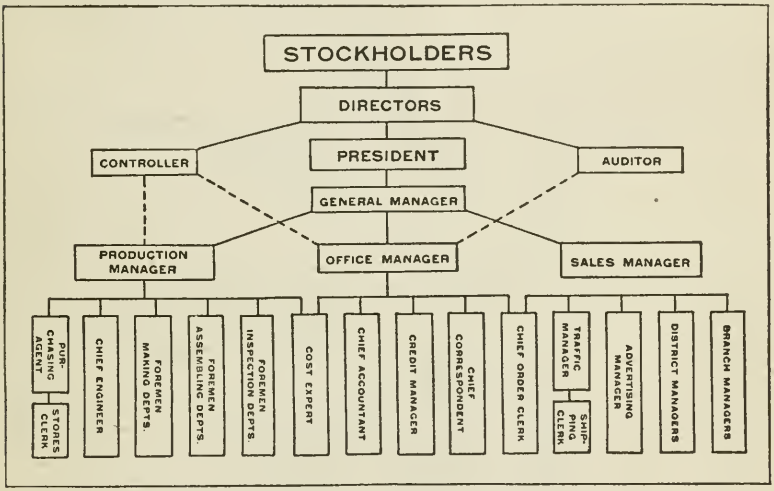
This advisory committee, in most large institutions, is made up of the general manager, who is closely connected with the operation of the factory and the organization of the office; the treasurer, who is interested in the financial work; the legal advisor; and in many instances some officers of the banking house through which the institution conducts its



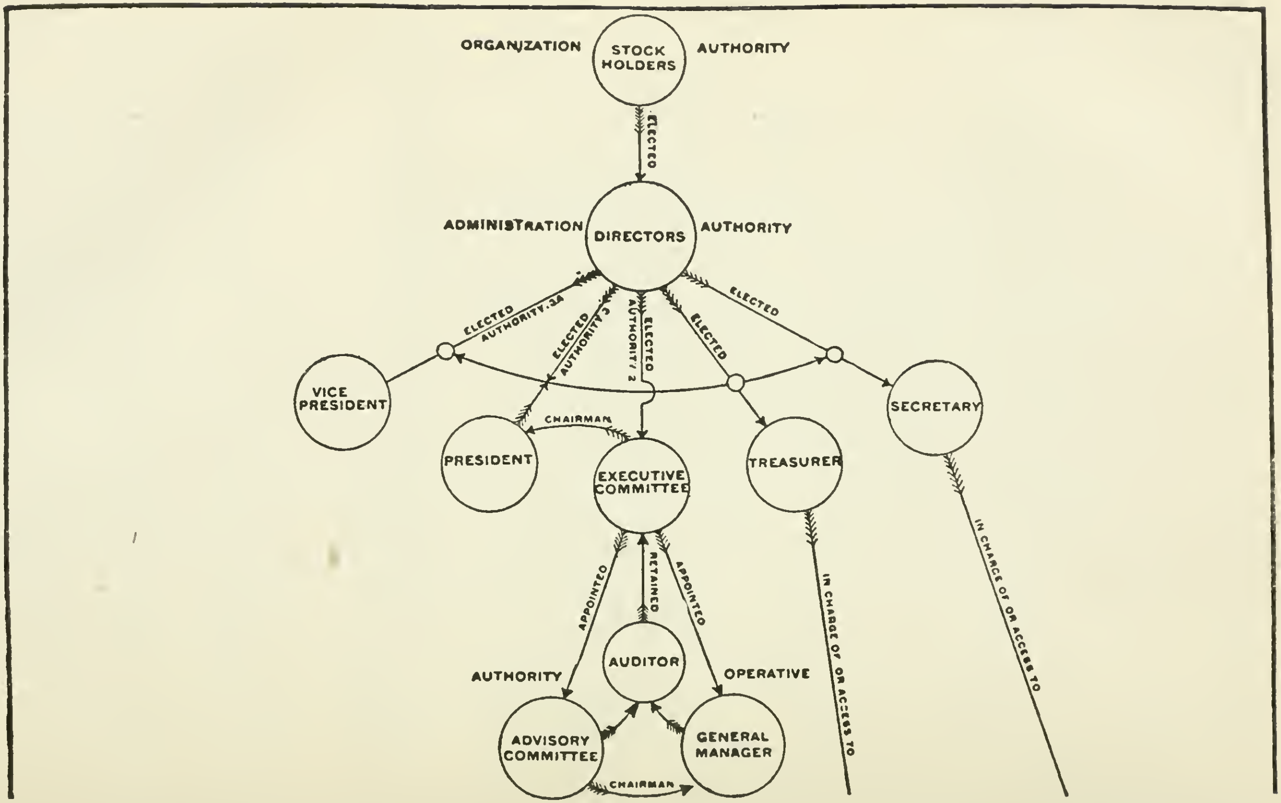
FORM 5.—The usual organization plan for a corporation is here represented. A nice adjustment of authorities to duties results from the several centers of control, each with a definitely limited power.

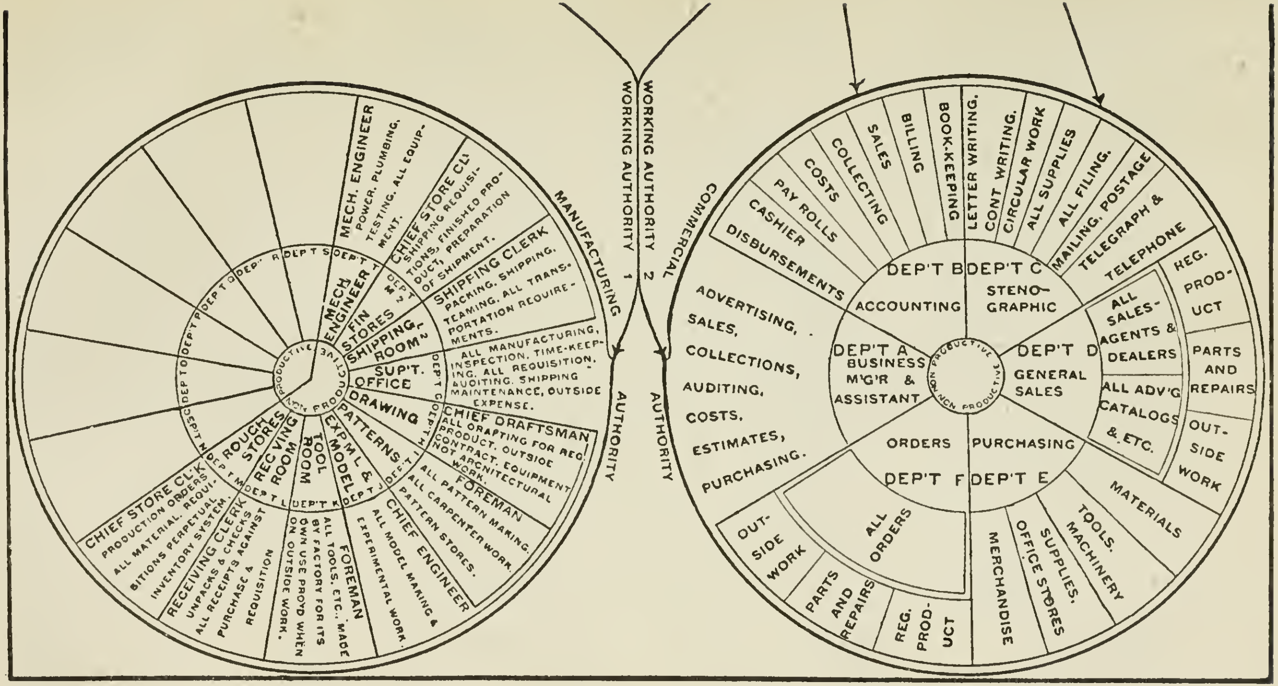
financial work. This advisory committee is able to meet successfully the difficulties of administration which come up from time to time.

But although authority is passed from stockholders to directors, from directors to an executive committee, and again to an advisory committee, there must be some positive limitation that will prevent any of these bodies violating the general policy of the institution. For example, one of the largest organizations in the country places a limit of $10,000 upon the expenditures which can be made by the advisory committee. Any expenditure under this amount could not seriously affect the policy or the finances of the company. If an expenditure between $10,000 and $25,000 is to be made, it must first be approved by the executive committee, and if an expenditure of more than $25,000 is deemed necessary, it must be passed upon by the board of directors. It is impracticable for any unimportant details of such a business as this to pass beyond the general manager or the advisory committee, but the financial limit which has been placed upon their actions makes it impossible for any step of a serious nature to be taken unless it has the approval of the executive committee, or, in the most vital matters, of the directors themselves. Thus



FORM 6.—In this chart are shown the same elements of corporate control as in Form 5. Here, however, are added the many smaller factors that are more or less necessary in any business, arranged according to their duties and the authority to which each is subordinated.


ORGANIZATION
STOCK HOLDERS
AUTHORITY
ELECTED
ADMINISTRATION
DIRECTORS
AUTHORITY
ELECTED
AUTHORITY 3A
ELECTED
AUTHORITY 3
ELECTED
AUTHORITY 2
ELECTED
ELECTED
VICE PRESIDENT
CHAIRMAN
PRESIDENT
EXECUTIVE COMMITTEE
TREASURER
SECRETARY
APPOINTED
RETAINED
APPOINTED
IN CHARGE OF OR ACCESS TO
IN CHARGE OF OR ACCESS TO
AUTHORITY
AUDITOR
OPERATIVE
ADVISORY COMMITTEE
GENERAL MANAGER
CHAIRMAN



FORM 7.—This double page diagram sums up the foregoing charts. It represents in detail the various branches of a large manufacturing concern. First the origin, elective power, and executive heads of the company; then the producing, accounting, and sales departments more fully than heretofore, with all their miscellaneous duties.

details are decided by the lower officials and only questions of general policy reach higher.

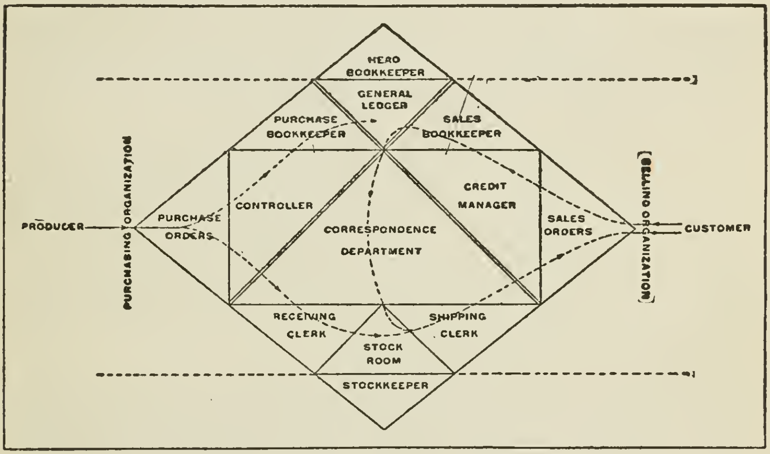
ALL BUSINESS ORGANIZATIONS BASED ON ONE PRINCIPLE

The details of the business organization following ownership control are practically the same, whatever form that ownership takes. No matter how complicated an organization may appear, when properly analyzed it can always be reduced to the rudimentary form shown in the diagram: that is to say, ownership concentrating its power of control into a central authority, known as the general manager, whence such power is administered through the medium of three executives over the main divisions of the organization, thus carrying out the three functions of the business: production, accounting, and selling.

The special organization of these three divisions varies according to the nature of the business, its size and the perfection of the system to which its operation has been reduced. The complete function of each division which will be performed through the different departments of work may be so closely involved as to make their separation not easily distinguishable. Frequently a general manager is his own production manager, sales manager and chief accountant combined, and when acting as such performs all the duties of the minor executives of each division. It is also true that the heads of divisions or departments are sometimes so named as to make their real position in the organization seem uncertain. For example, an official may hold the title of "business manager" and have charge of both the accounting and sales divisions, when, in fact, his proper title is that of assistant general manager, as he simply represents the executive in his detail work.

THE AUDITOR AN OFFICIAL OF PECULIAR INDEPENDENCE

It will be noticed that the office of auditor is (see Form 6) subordinate only to the board of directors. The position of auditor may be filled in either one of two ways. There are at present large auditing companies which from time to time go over the work of an entire business organization in order to prove the accuracy of the work in each department. The position of auditor on this chart, however, means that there is a certain official retained by the executive committee as an active member of the organization. The work which the auditor performs in an organization of this kind is usually of a statistical and reportorial nature, such as drawing up comparative tables of the work done, particularly that of the accounting department. For this reason he is not put under the general manager nor under the secretary or treasurer, who may be interested in the conduct of the work, but keeps an independent position and is responsible only to the executive committee. Only in this way can he be so independent that he can criticize either favorably or unfavorably the work that has been done. He must be able to act without fear or bias, and bring before the executive committee the exact details of the business which they need most to know. They have given up their authority, but at the same time they must know that the trust they have imposed is carried out.



FORM 8.—A single department, that of accounting, is here analyzed. The line at the left represents material purchased from the producer. The bill for this purchase goes to the records; the material passes to the stock room to be met by orders from customers and shipped in satisfaction of these sales.

THE FUNCTIONS OF THE CONTROLLER

Another important official whose duties demand that he be independent of the department heads is the controller. Sometimes the work of this official and of the auditor are performed by the same man, but the functions should be discriminately named if not separated in fact. The controller is, as his title suggests, the safety check on a business. He has absolute control over disbursements and all purchase orders are submitted to him before leaving the office. He also may check the work of the plant superintendent if he thinks that production is being carried on too rapidly for economy. His power of limitation extends also to the credit manager, whose decisions on the extending of credit he may review and reverse. He is accountable only to the board of directors from whom he receives his authority.

In a stock corporation, as earlier stated, the officers play an inconspicuous part in the actual operation of the business, and yet, by special act of the directors or by authority of the by-laws, they may become active elements of the working organization. The president, by virtue of his position, is at the same time chairman of the executive committee. Working along with him, with authority received from the same source, are the vice-president, the treasurer, and the secretary.

The vice-president ordinarily has no other duties than to take the place of the president in case of the latter's inability to perform his usual work. However, in many modern organizations, in order that the vice-president may be more closely associated with the organization and because, in many instances, he is financially interested to a large extent, he also acts as general manager, sales manager, or in some equally responsible position.

The secretary and treasurer may have charge of different departments of the office work. Where these offices are held by different men, the secretary may have charge of the general stenographic and office work, and the treasurer may have oversight of the accounting functions which are closest connected with the finances of the organization. Officers of the company are frequently appointed to executive positions and retain their corporation titles, while in reality those titles should be used only in their connection with the stock corporation itself. For example, the treasurer of a corporation might be appointed to or given the position of a controller, and his work in the latter capacity might be done under the title of treasurer but in reality he is simply controller while he occupies the controller's desk. In large corporations, however, the secretary and treasurer, instead of directing any department, will be busied with the more important statistical and financial conduct of the company.

62. SCIENTIFIC MANAGEMENT[1]

I. THE FUNCTION OF SCIENTIFIC MANAGEMENT

In the past the prevailing idea has been well expressed in the saying that "Captains of industry are born, not made"; and the theory has been that if one could get the right man, methods could be safely left to him. In the future it will be appreciated that our leaders must be trained right as well as born right, and that no great man can (with the old system of personal management) hope to compete with a number of ordinary men who have been properly organized so as efficiently to co-operate.

This paper has been written:

First. To point out, through a series of simple illustrations, the great loss which the whole country is suffering through inefficiency in almost all of our daily acts.

Second. To try to convince the reader that the remedy for this inefficiency lies in systematic management, rather than in searching for some unusual or extraordinary man.

Third. To prove that the best management is a true science, resting upon clearly defined laws, rules, and principles, as a foundation. And further to show that the fundamental principles of scientific management are applicable to all kinds of human activities, from our simplest individual acts to the work of our great corporations, which call for the most elaborate co-operation. And, briefly, through a series of illustrations, to convince the reader that whenever these principles are correctly applied, results must follow which are truly astounding.

Under the old type of management success depends almost entirely upon getting the "initiative" of the workmen, and it is indeed a rare case in which this initiative is really attained. Under scientific management the "initiative" of the workmen (that is, their hard work, their good-will, and their ingenuity) is obtained with absolute uniformity and to a greater extent than is possible under the old system; and in addition to this improvement on the part of the men, the managers assume new burdens, new duties, and responsibilities never dreamed of in the past. The managers assume, for instance, the burden of gathering together all of the traditional knowledge which in the past has been possessed by the workmen and then of classifying, tabulating, and reducing this knowledge to rules, laws,

[1] Adapted from F. W. Taylor, *The Principles of Scientific Management, passim.* Harper & Brothers, 1913. (Copyright, 1911, by Frederick W. Taylor.)

and formulae which are immensely helpful to the workmen in doing their daily work. In addition to developing a *science* in this way, the management take on three other types of duties which involve new and heavy burdens for themselves.

These new duties are grouped under four heads:

First. They develop a science for each element of a man's work, which replaces the old rule-of-thumb method.

Second. They scientifically select and then train, teach, and develop the workman, whereas in the past he chose his own work and trained himself as best he could.

Third. They heartily co-operate with the men so as to insure all of the work being done in accordance with the principles of the science which has been developed.

Fourth. There is almost equal division of the work and the responsibility between the management and the workmen. The management take over all work for which they are better fitted than the workmen, while in the past almost all of the work and the greater part of the responsibility were thrown upon the men.

II. SOME OF THE PRINCIPLES OF SCIENTIFIC MANAGEMENT EXPLAINED

[The author presents many cases of scientific study of industrial methods; for example, "time studies" of the movements required by a workman in doing each part of his work, scientific study of the proper types of implements to be used, investigations of the tiring effect of heavy labor upon a first-class man, to determine the "law" governing the proportion of the day during which the laborer may wisely be "under load" and the "law" governing the frequency and length of periods of rest, etc. Even the method of wage payment, it is argued, is governed by "laws" discovered through investigation of the motives which influence men.—EDITORS.]

Perhaps the most important law belonging to this class, in its relation to scientific management, is the effect which the task idea has upon the efficiency of the workman. This, in fact, has become such an important element of the mechanism of scientific management, that by a great number of people scientific management has come to be known as "task management." . . . . The average workman will work with the greatest satisfaction, both to himself and to his employer, when he is given each day a definite task which he is to perform in a given time, and which constitutes a proper day's work for a good workman. This furnishes the workman with a clear-cut standard, by which he can throughout the day measure his own progress, and the accomplishment of which affords him the greatest satisfaction.

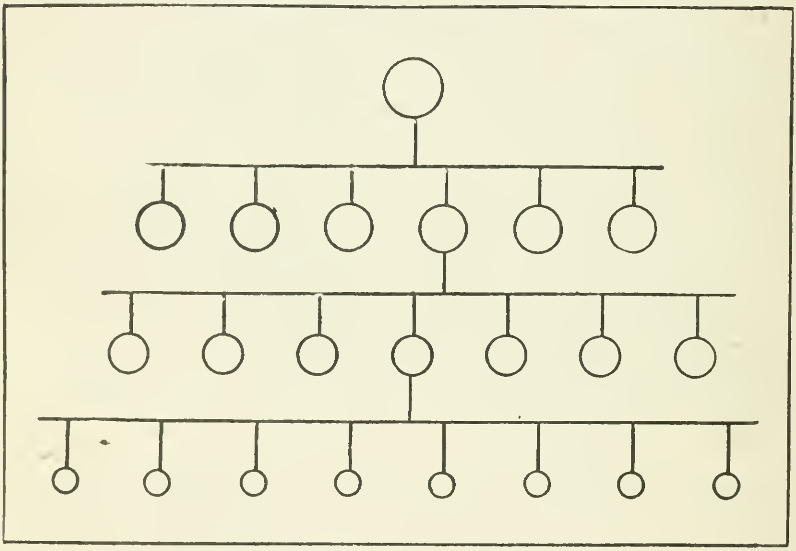
The writer has described in other papers a series of experiments made upon workmen, which have resulted in demonstrating the fact that it is impossible, through any long period of time, to get workmen to work much harder than the average men around them, unless they are assured a large and a permanent increase in their pay. This series of experiments, however, also proved that plenty of workmen can be found who are willing to work at their best speed, provided they are given this liberal increase in wages. The workman must, however, be fully assured that this increase beyond the average is to be permanent. Our experiments have shown that the exact percentage of increase required to make a workman work at his highest speed depends upon the kind of work which the man is doing.

These two elements, the task and the bonus (which, as has been pointed out in previous papers, can be applied in several ways), constitute two of the most important elements of the mechanism of scientific management. They are especially important from the fact that they are, as it were, a climax, demanding before they can be used almost all of the other elements of the mechanism; such as a planning department, accurate time study, standardization of methods and implements, a routing system, the training of functional foremen or teachers, and in many cases instruction cards, slide-rules, etc.

The necessity for systematically teaching workmen how to work to the best advantage has been referred to. It seems desirable, therefore, to explain in rather more detail how this teaching is done. In the case of a machine shop which is managed under the modern system, detailed written instructions as to the best way of doing each piece of work are prepared in advance, by men in the planning department. These instructions represent the combined work of several men in the planning-room, each of whom has his own specialty or function. One of them, for instance, is a specialist on the proper speeds and cutting tools to be used. He uses specially prepared slide-rules as an aid, to guide him in obtaining proper speeds, etc. Another man analyzes the best and quickest motions to be made by the workman in setting the work up in the machine and removing it, etc. Still a third, through the time-study records which have been accumulated, makes out a time-table giving the proper speed for doing each element of the work. The directions of all of these men, however, are written on a single instruction card or sheet. Human nature is such, however, that many of the workmen, if left to themselves, would pay but little attention to their written instructions. It is necessary, therefore, to provide teachers (called functional foremen) to see that the workmen both understand and carry out these written instructions.

Under functional management, the old-fashioned single foreman is superseded by eight different men, each of whom has his own special duties, and these men, acting as the agents for the planning department, are the expert teachers, who are at all times in the shop helping and directing the workmen. Being each one chosen for his knowledge and personal skill in his specialty, they are able not only to tell the workman what he should do, but in case of necessity they do the work themselves in the presence of the workman, so as to show him not only the best but also the quickest methods.

Diagram Illustrating the Routes of Authority under the Traditional or Military Type of Management[1]



One of these teachers (called the inspector) sees to it that he understands the drawings and instructions for doing the work. He teaches him how to do work of the right quality; how to make it fine and exact where it should be fine, and rough and quick where accuracy is not required—the one being just as important for success as the other. The second teacher (the gang boss) shows him how to set up the job in his machine, and teaches him to make all of his personal motions in the quickest and best way. The third (the speed boss) sees that the machine is run at the best speed and that the proper tool is used in the particular way which will enable the machine to finish its product in the shortest possible time. In addition to the assistance given by these teachers, the workman receives orders and help from four other men: from the "repair boss" as to the adjustment, cleanliness, and general care of his machine, belting, etc.; from the "time clerk," as to everything relating to his pay and to proper written reports and returns; from the "route clerk," as to

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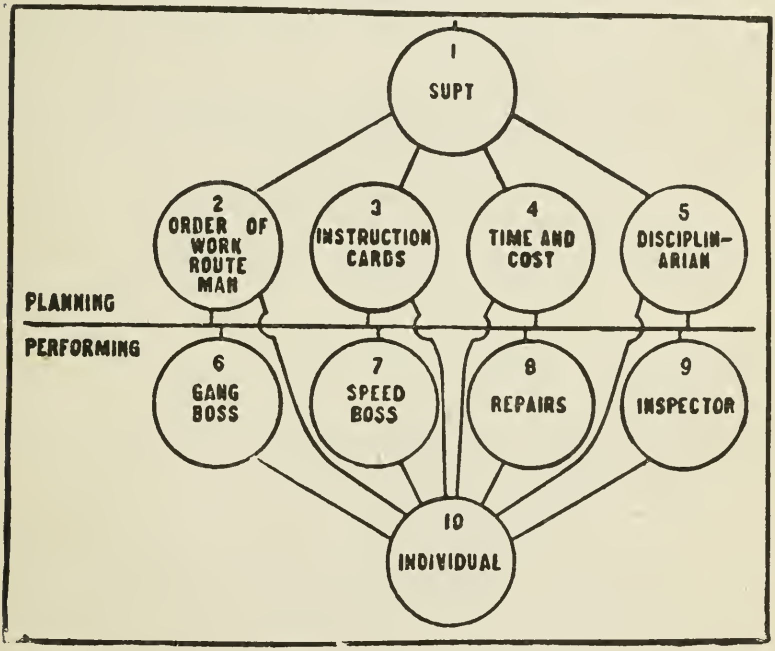
[1] This diagram is taken from Frank B. Gilbreth, "Units, Methods, and Devices of Measurement under Scientific Management," in *The Journal of Political Economy*, XXI, 619 (July, 1913).

Diagram Illustrating the Principle of Functional or Scientific Management[1]



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[1] This diagram is taken from Frank B. Gilbreth, "Units, Methods, and Devices of Measurement under Scientific Management," in *The Journal of Political Economy*, XXI, 619 (July, 1913).

the order in which he does his work and as to the movement of the work from one part of the shop to another; and, in case a workman gets into any trouble with any of his various bosses, the "disciplinarian" interviews him.

The history of the development of scientific management up to date, however, calls for a word of warning. The mechanism of management must not be mistaken for its essence, or underlying philosophy. As elements of this mechanism may be cited:

Time study, with the implements and methods for properly making it.

Functional or divided foremanship and its superiority to the old-fashioned single foreman.

The standardization of all tools and implements used in the trades, and also of the acts or movements of workmen for each class of work.

The desirability of a planning-room or department.

The "exception principle" in management.

The use of slide-rules and similar time-saving implements.

Instruction cards for the workman.

The task idea in management, accompanied by a large bonus for the successful performance of the task.

The "differential rate."

Mnemonic systems for classifying manufactured products as well as implements used in manufacturing.

A routing system.

Modern cost system, etc., etc.

These are, however, merely the elements or details of the mechanism of management. Scientific management, in its essence, consists of a certain philosophy, which results, as before stated, in a combination of the four great underlying principles of management: first, The development of a true science; second, The scientific selection of the workman; third, His scientific education and development; fourth, Intimate friendly co-operation between the management and the men.

III. SOME ILLUSTRATIONS OF THE APPLICATION OF THE PRINCIPLES OF SCIENTIFIC MANAGEMENT

A number of years ago a company employing about three hundred men, which had been manufacturing the same machine for from ten to fifteen years, sent for us to report as to whether any gain could be made through the introduction of scientific management. Their shops had been run for many years under a good superintendent and with excellent foremen and workmen, on piecework. The whole establishment was, without doubt, in better physical condition than the average machine shop in this country. The superintendent was distinctly displeased when told that through the adoption of task management the output, with the same number of men and machines, could be more than doubled. He said that he believed that any such statement was mere boasting, absolutely false, and instead of inspiring him with confidence, he was disgusted that anyone should make such an impudent claim. He, however, readily assented to the proposition that he should select any one of the machines whose output he considered as representing the average of the shop, and that we should then demonstrate on this machine that through scientific methods its output could be more than doubled.

The machine selected by him fairly represented the work of the shop. It had been run for ten or twelve years past by a first-class mechanic who was more than equal in his ability to the average workmen in the establishment. In a shop of this sort, in which similar machines are made over and over again, the work is necessarily greatly subdivided, so that no one man works upon more than a comparatively small number of parts during the year. A careful record was therefore made, in the presence of both parties, of the time actually taken in finishing each of the parts which this man worked upon. The total time required by him to finish each piece, as well as the exact speeds and feeds which he took, were noted, and a record was kept of the time which he took in setting the work in the machine and removing it. After obtaining in this way a statement of what represented a fair average of the work done in the shop, we applied to this one machine the principles of scientific management.

By means of four quite elaborate slide-rules, which have been especially made for the purpose of determining the all-round capacity of metal-cutting machines, a careful analysis was made of every element of this machine in its relation to the work in hand. Its pulling power at its various speeds, its feeding capacity, and its proper speeds were determined by means of the slide-rules, and changes were then made in the countershaft and driving pulleys so as to run it at its proper speed. Tools, made of high-speed steel, and of the proper shapes, were properly dressed, treated, and ground. (It should be understood, however, that in this case the high-speed steel which had heretofore been in general use in the shop was also used in our demonstration.) A large special slide-rule was then made, by means of which the exact speeds and feeds were indicated at which each kind of work could be done in the shortest possible time in this particular lathe. After preparing in this way so that the workman should work according to the new method, one after another, pieces of work were finished in the lathe, corresponding to the work which had been done in our preliminary trials, and the gain in time made through running the machine according to scientific principles ranged from two and one-half times the speed in the slowest instance to nine times the speed in the highest.

[In the case of a factory where a staff of girls inspected balls to be used in the bearings of bicycles]—the final outcome of all the changes was that *thirty-five girls did the work formerly done by one hundred and twenty.* And that the *accuracy of the work at the higher speed was two-thirds greater than at the former slow speed.*

The good that came to the girls was: first, that they averaged from 80 to 100 per cent higher wages than they formerly received; second, their hours of labor were shortened from 10½ to 8½ per day, with a Saturday half-holiday, and they were given four recreation periods properly distributed through the day, which made overworking impossible for a healthy girl; third, each girl was made to feel that she was the object of especial care and interest on the part of the management, and that if anything went wrong with her she could always have a helper and teacher in the management to lean upon.

The benefits which came to the company from these changes were: first, a substantial improvement in the quality of the product; second, a material reduction in the cost of inspection, in spite of the extra expense involved in clerk work, teachers, time study, over-inspectors, and in paying higher wages; third, that the most friendly relations existed between the management and the employees, which rendered labor troubles of any kind or a strike impossible.

Bricklaying is one of the oldest of our trades. For hundreds of years there has been little or no improvement made in the implements and materials used in this trade, nor in fact in the method of laying bricks. In spite of the millions of men who have practiced this trade, no great improvement has been evolved for many generations. Here, then, at least, one would expect to find but little gain possible through scientific analysis and study. Mr. Frank B. Gilbreth who had himself studied bricklaying in his youth, became interested in the principles of scientific management, and decided to apply them to the art of bricklaying. He made an intensely interesting analysis and study of each movement of the bricklayer, and one after another eliminated all unnecessary movements and substituted fast for slow motions. He experimented with every minute element which in any way affects the speed and the tiring of the bricklayer.

He developed the exact position which each of the feet of the bricklayer should occupy with relation to the wall, the mortar box, and the pile of bricks, and so made it unnecessary for him to take a step or two toward the pile of bricks and back again each time a brick is laid.

He studied the best height for the mortar box and brick pile, and then designed a scaffold, with a table on it, upon which all of the materials are placed, so as to keep the bricks, the mortar, the man, and the wall in their proper relative positions. These scaffolds are adjusted, as the wall grows in height, for all of the bricklayers by a laborer especially detailed for this purpose, and by this means the bricklayer is saved the exertion of stooping down to the level of his feet for each brick and each trowelful of mortar and then straightening up again.

As a result of further study, after the bricks are unloaded from the cars, and before bringing them to the bricklayer, they are carefully sorted by a laborer, and placed with their best edge up on a simple wooden frame, constructed so as to enable him to take hold of each brick in the quickest time and in the most advantageous position. In this way the bricklayer avoids either having to turn the brick over or end for end to examine it before laying it, and he saves, also, the time taken in deciding which is the best edge and end to place on the outside of the wall. In most cases, also, he saves the time taken in disentangling the brick from a disorderly pile on the scaffold. This "pack" of bricks (as Mr. Gilbreth calls his loaded wooden frames) is placed by the helper in its proper position on the adjustable scaffold close to the mortar box.

We have all been used to seeing bricklayers tap each brick after it is placed on its bed of mortar several times with the end of the handle of the trowel so as to secure the right thickness for the joint. Mr. Gilbreth found that by tempering the mortar just right, the bricks could be readily bedded to the proper depth by a downward pressure of the hand with which they are laid. He insisted that his mortar mixers should give special attention to tempering the mortar, and so save the time consumed in tapping the brick.

Through all of this minute study of the motions to be made by the bricklayer in laying bricks under standard conditions, Mr. Gilbreth has reduced his movements from eighteen motions per brick to five, and even in one case to as low as two motions per brick. He reports that a few months ago, in a large brick building which he erected, he demonstrated on a commercial scale the great gain which is possible from practically applying his scientific study. With union bricklayers, in laying a factory wall, twelve inches thick, with two kinds of brick, faced and ruled joints on both sides of the wall, he averaged, after his selected workmen had become skilful in his new methods, 350 bricks per man *per hour;* whereas the average speed of doing this work with the old methods was, in that section of the country, 120 bricks per man per hour. His bricklayers were taught his new method of bricklaying by their foreman. Those who failed to profit by their teaching were dropped, and each man, as he became proficient under the new method, received a substantial (not a small) increase in wages.

The writer has gone thus fully into Mr. Gilbreth's method in order that it may be perfectly clear that this increase in output and that this harmony could not have been attained under the management of "initiative and incentive" (that is, by putting the problem up to the workman and leaving him to solve it alone) which has been the philosophy of the past. And that his success has been due to the use of the four elements which constitute the essence of scientific management.

63. CRITICISMS OF SCIENTIFIC MANAGEMENT[1]

There have been nine principal criticisms of scientific management. Three are concerned with its effect on the individual workman physically and temperamentally. The others are concerned with its influence on labor as a productive group.

First.—The taking of time studies and the determination and setting of a task are a reflection upon the good faith of labor. It sets up the relationship of master and slave. This criticism is undoubtedly prompted by a sensitiveness which is aroused by too much emphasis, in expositions of scientific management, upon the treatment of labor. Most expositions have been for the benefit of management, and have emphasized the handling of labor. In the application of scientific management, however, the managerial force is studied just as keenly and reorganized just as thoroughly as is the labor force. Each person concerned with the executive operations has a task and is held strictly accountable for its performance. In plants in which scientific management has been applied, and in such plants only, is labor enabled to judge of the efficiency of the executive force and to hold it up to established standards of efficiency. Scientific management recognizes no difference, in determining standards of efficiency, between management, capital goods, and labor.

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[1] Adapted from pp. 10–16 of H. S. Person's introduction to the volume of *Addresses and Discussions at the Conference on Scientific Management* held by the Amos Tuck School of Dartmouth College, October 12, 13, 14, 1911.

Second.—The removal from the workman of individual responsibility for determining the method of an operation and leaving to him attention to the skilful performance only, makes his work uninteresting and monotonous and is bound to stunt him intellectually. My own observations and the observations of others in plants where scientific management has been applied do not support this criticism. The first error in the criticism is the assumption that taking from the workman the necessity of going after and selecting the proper kinds of material, tools, etc.—and that is one of the principal responsibilities of which the redistribution of duties deprives him—takes from him something intellectually stimulating. Another error is the assumption that performing an operation according to the best method is intellectually less stimulating than performing it according to an inefficient method. A third error is the assumption that a method handed down by tradition is intellectually more stimulating than a method derived by experiment.

Third.—The effect of scientific management is to "speed up" the workman, wear him out, and cause him to be cast aside. Again, actual investigation in plants so organized does not support this criticism. Its error is the assumption that the increased productivity comes from a greater expenditure of muscular and nervous energy in a working day. The increased productivity comes, however, from other things; from saving in overhead charges, from the using of material in a predetermined correct way, from the using of machinery in a predetermined most efficient way, from the elimination of the time a workman wastes in going after material and tools, from the elimination of the misapplication of muscular and nervous energy in unnecessary motions, and from compulsory periods of rest, even, which the workman will ordinarily not take for himself. The beginner at golf expends more energy in a round of nine holes than the experienced player in a round of eighteen; the skilful carpenter expends far less energy in planing a board than does the novice. Scientific management strives to teach the workman skill, and to prevent over-exertion as much as to prevent loafing. One of the most impressive things to the visitor at a plant so organized is the absence on the one hand of loitering and on the other hand of haste.

Fourth.—Scientific management is inapplicable because of the mobility of labor; to teach the laborer the best method requires that he be retained for a period, but as a rule labor is continually coming into and going out of a plant, and before a laborer becomes skilful he is off and a new, awkward man has been hired to take his place. This criticism over-emphasizes the mobility of labor; it premises a mobility which the average manager does not experience. I once asked the manager of a plant organized according to the principles of scientific management what was the average time a workman remained with him. Eight years, he replied. He stated further that the average time was increasing under the new conditions of organization. Scientific management carries with it its own corrective of the loss which comes from too great a mobility of labor. The fact that a workman is permitted to work under conditions which render him more productive and that he is paid according to his ability keeps him in the plant.

Fifth.—It inaugurates a spying system among the laborers which results in mutual distrust, quarrels, and absence of esprit. I do not know what is meant by spying system, unless it refers to the supposed fact that, in a sequence of processes, if one workman fails to keep up to standard, it will cause loss to another workman who to protect himself will have to complain of the first workman. This criticism is due to assumptions concerning scientific management which are not true. No workman has to complain of another; if a workman is derelict the fact is reported automatically to the management by the impersonal time slip, and it is the duty of management to relieve the situation before any other workman can become aware of it. The relationship is not between workman and workman, but between workman and the order-of-work clerk. The persons of whom the workman may have occasion to complain are those in the routing, an executive, department. And as a matter of fact, finally, I have not observed, and no one has reported that he has observed, in a plant in which scientific management has become well established, any lack of harmony in the labor force; on the contrary, it is the consensus of opinion that a fine spirit of co-operation is conspicuous in such plants.

Sixth.—Workmen have had a bitter experience with the piece-rate system; have been "speeded up" by increases in piece-rates only to have the rates cut. May not the differential wage system of scientific management be used against the workman in a similar way? This is a reasonable question. Such a manipulation of the differential wage system seems to me to be possible, but I doubt whether it is probable. In the first place, the experience of manufacturers who have reduced piece-rates has been as bitter as the experience of the laborer. They are coming to consider the rate-cutting of the past as one of the great blunders of management. It will take exceedingly strong temptation to induce them to try it again. In the second place, piece-rates in the past have been established without a sufficient knowledge of the conditions of production. They gave to the workman all the increase of production except that resulting from reduction in overhead costs. The invention of new and improved machines brought practically nothing to management, and placed it at a disastrous disadvantage in competition with firms paying day-wages, to which came all the advantages of the introduction of more efficient machines. Rate-cutting was compelled by the circumstances of competition. Under scientific management, on the other hand, rates are determined only after exhaustive investigations of the productivity of a laborer in combination with a given machine, and a separate rate is established for every such combination. If a new and more efficient machine is introduced, a new rate is established as the result of a new investigation. So long as plants organized under scientific management enjoy the resulting differential advantage in competition with plants paying day-wages, there will be little danger of rate-cutting, for in proportion as the earnings of workmen increase does the unit cost of the product decrease. If the time should come, as it is reasonable to expect it will come, when all plants in a competitive industry should be organized according to the principles of scientific management, so that the differential advantage would no longer exist, there might be temptation to rate-cutting. But under those conditions the temptation would be no greater than to cut under the day-wage system. And if unions still existed labor would be in as good a position to protect itself in the one case as in the other.

Seventh.—The increase of efficiency which results from scientific management will throw labor out of employment. The untenable assertion that such would be its ultimate effect is not deserving of serious consideration. But that there may be temporarily such a result in a given industry is possible, if increased demand resulting from decreased selling price should not *pari passu* accompany increased efficiency in production. It is good economics to assume that in the long run improved methods will make employment for a larger number of persons; but it is also good sense for the laborer to take into consideration the possible immediate consequences of lack of employment for a season. The saving factor in the situation is that scientific management cannot be applied in a day. To apply it to a given plant is a matter of years. The organizing engineers capable of applying it with such results in increased productive efficiency as have been of late brought to our attention are and always will be few. If there is an impending revolution in industry comparable to the revolution at the beginning of the nineteenth century, it will be quite different in at least one respect: systems of scientific management will not be turned out as was cotton and power machinery, in great quantities at a relatively low cost and standardized to fit any and all plants. Each plant presents a distinct problem to the organizing engineer, a problem of several years' duration. There can therefore never be unemployment of a large body of men on account of sudden, widespread, more efficient organization. The firms which introduce scientific management usually enjoy such a differential advantage that they are able to make prices which enable them to increase their plants so as to take care of the small amount of what would otherwise be surplus labor.

Eighth.—It is asserted that labor is not allowed to help fix the rate of compensation. Labor has as yet expressed no desire to do so. In all cases of reorganization rates have been fixed so that labor has been able to earn more than it has demanded. If the time should come, as it surely will come, when labor asks to be allowed a voice in establishing differential rates under scientific management, there is nothing in the nature of that form of organization to make it impossible. On the contrary, it is probable that such co-operation between management and labor would work out more smoothly than under present conditions. The method of determining what the combination of a machine and a man can do is so scientifically accurate that facts could be easily ascertained, and both labor and manager are reasonable when they know the facts. Whether labor would enjoy the opportunity of helping fix rates would depend on the solidarity of the group in making its demand.

Ninth.—It is asserted that scientific management would impair the solidarity of labor; that it would break down unionism by substituting individual bargaining in the place of collective bargaining for which unionism is now struggling. Scientific management aims to do away with equal payment to all laborers irrespective of their productivity, but it does not aim to do away with collective bargaining. It is possible under scientific management for a union through its selected representatives to take a part in determining what is the best method of performing an operation, what would be a reasonable task, and what would be a reasonable division of the increased returns. These things once determined, it would have to permit its individual members to be paid according to their individual contributions to the increased returns. Scientific management would impair the solidarity of unionism to the extent that that solidarity is dependent upon flat hour-rates for all men; it would not impair the solidarity by making collective bargaining impossible.

I have not enumerated as a criticism of scientific management the assertion that a great number of inefficient, of "fake," organizing engineers is likely to arise to exploit the new profession and to work havoc with those plants whose managers they induce to accept their services. It is a real danger, but it is not a legitimate criticism of scientific management. Managers should realize that ability to organize successfully a business depends upon a combination of qualities not found together in many men—largeness of vision, capacity for details, patience, tact which is born of sympathy, the capacity to analyze and to combine, and scientific knowledge of technical processes.

64. PARTNERSHIP ARTICLES

James E. Smith and John Doe, both of the City of Chicago, Illinois, hereby mutually agree to become partners under the firm name of "Smith & Doe" to conduct the trade and business of printing in the said city for the period of five years from date.

The said Smith invests his stock of presses, paper, ink, and other material, estimated to be worth ten thousand dollars, and the said Doe invests ten thousand dollars in cash.

Both partners shall give their entire time and shall share losses and gains equally.

All amounts earned or received by either partner for work, materials, or anything pertaining to the business, shall be deposited in the First National Bank of Chicago in the name of both partners, and shall be checked out as needed for expenses and supplies, by the signatures of both partners, and an equal amount shall be drawn each Monday morning for each partner for personal expenses, but a balance of five hundred dollars shall always be kept and held.

When the firm shall be dissolved the balance on hand shall be divided equally and all debts shall be paid from the money in bank, after which the money shall be divided equally between the partners.

Witness our hands and seals this 25th day of October, 1911.

Attest: JAMES. E. SMITH. [L.S.]

CHARLES ROBINSON JOHN DOE. [L.S.]

65. FORM OF CORPORATION CHARTER

CERTIFICATE OF INCORPORATION

We, the undersigned, in order to form a corporation for the purposes hereinafter set forth, under and pursuant to the provisions of the Act of the Legislature of the State of New Jersey, entitled "An Act Concerning Corporations (Revision of 1896)," and the acts amendatory thereof and supplemental thereto, do hereby certify as follows:

ARTICLE I

The name of the corporation is:

ARTICLE II

The principal and registered office of the Company is in the Building , New Jersey, and the name of the agent therein and in charge thereof, and upon whom process against this corporation may be served, is

ARTICLE III

The objects for which and for each of which the corporation is formed are:[1]

It is the intention that the objects, purposes, and powers specified in the clauses contained in this third paragraph shall, except where otherwise expressed in said paragraph, be nowise limited or restricted by reference to or inference from the terms of any other clause of this or any other paragraph in this charter, but that the objects, purposes, and powers specified in each of the clauses of this paragraph shall be regarded as independent objects, purposes, and powers.

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[1] [This "object clause" varies with the nature of the business. Ordinarily it is comparatively simple, but it may be made very broad and comprehensive, as in the case of the U.S. Steel Corporation, given in the following selection.—EDITORS.]

ARTICLE IV

The following provisions for the regulation of the business and the conduct of the affairs of the Company are hereby established:

The corporation may use and apply its surplus earnings or accumulated profits authorized by law to be reserved to the purchase or acquisition of property, and to the purchase or acquisition of its own capital stock from time to time, to such extent and in such manner and upon such terms as its Board of Directors shall determine; and neither the property nor the capital stock so purchased and acquired, nor any of its capital stock taken in payment or satisfaction of any debt due to the corporation, shall be regarded as profits for the purposes of declaration or payment of dividends, unless otherwise determined by a majority of the Board of Directors or a majority of the stockholders.

The corporation in its by-laws may prescribe the number necessary to constitute a quorum of the Board of Directors, which number may be less than a majority of the whole number.

The Board of Directors shall have power, without the assent or vote of the stockholders, to make, alter, rescind, or amend the by-laws of the corporation, to fix the amount to be reserved as working capital, to authorize and cause to be executed mortgages and liens upon the real and personal property of the corporation; and from time to time to sell, assign, transfer, or otherwise dispose of any or all of the property of the corporation, but no such sale of all the property shall be made except pursuant to the vote of at least two-thirds of the Board of Directors.

The Board of Directors from time to time shall determine whether and to what extent, and at what times and places, and under what conditions and regulations, the accounts and books of the corporation, or any of them, shall be open to the inspection of the stockholders; and no stockholder shall have any right of inspecting any account or book or document of the corporation, except as conferred by statute or authorized by the Board of Directors, or by a resolution of the stockholders.

The Board of Directors shall have power to hold its meetings, to have one or more offices, and to keep the books of the corporation (except the stock and transfer books) outside of the State of New Jersey at such places as may be from time to time designated by them.

ARTICLE V

The Company shall be authorized to issue capital stock to the amount of dollars. The number of shares of which the capital stock shall consist is shares of the par value of dollars each. (If preferred stock is desired, insert provisions therefor at this point.)

ARTICLE VI

The names and post-office addresses of the incorporators, and the number of shares of stock for which severally and respectively we do hereby subscribe, the aggregate of our said subscriptions being dollars, which is the amount of capital stock with which the Company will begin business, are as follows:

Names	Post-Office Addresses	No. of Shares

ARTICLE VII

The duration of the Company shall be perpetual.

In Witness Whereof, we have hereunto set our hands and seals this day of 191

[L.S.]
[L.S.]
[L.S.]

66. A CHARTER "OBJECT CLAUSE"[1]

III. The objects for which the corporation are formed are:

To manufacture iron, steel, manganese, coke, copper, lumber, and other material, and all or any articles consisting, or partly consisting, of iron, steel, copper, wood, or other materials, and all or any products thereof.

To acquire, own, lease, occupy, use, or develop any lands containing coal or iron, manganese, stone, or other ores, or oil, and any wood lands, or other lands for any purpose of the company.

To mine or otherwise to extract or remove coal, ores, stone, and other minerals, and timber from any lands owned, acquired, leased, or occupied by the company, or from any other lands.

To buy and sell, or otherwise to deal or to traffic in iron, steel, manganese, copper, stone, ores, coal, coke, wood, lumber, and other materials, and any of the products thereof, and any articles consisting or partly consisting thereof.

To construct bridges, buildings, machinery, ships, boats, engines, cars, and other equipment, railroads, docks, slips, elevators, waterworks, gas works, and electric works, viaducts, aqueducts, canals, and other water-ways, and other means of transportation, and to sell the same or otherwise to dispose thereof, or to maintain and operate the same except that the company shall not maintain or operate any railroad or canal in the state of New Jersey.

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[1] From the charter of the United States Steel Corporation.

To apply for, obtain, register, purchase, lease, or otherwise to acquire, and to hold, use, own, operate, and introduce, and to sell, assign, or otherwise to dispose of, any trade-marks, trade-names, patents, inventions, improvements, and processes used in connection with or secured under letters patent of the United States, or elsewhere or otherwise, and to use, exercise, develop, grant licenses in respect of, or otherwise to turn to account any such trade-marks, patents, licenses, processes, and the like, or any such property or rights.

To engage in any other manufacturing, mining, construction, or transportation business of any kind or character whatsoever, and to that end to acquire, hold, own, and dispose of any and all property, assets, stocks, bonds, and rights of any and every kind, but not to engage in any business hereunder which shall require the exercise of the right of eminent domain within the state of New Jersey.

To acquire by purchase, subscription, or otherwise, and to hold or to dispose of stocks, bonds, or any other obligations of any corporation formed for, or then or theretofore engaged in or pursuing, any one or more of the kinds of business, purposes, objects, or operations above indicated, or owning or holding any property of any kind herein mentioned, or of any corporation owning or holding the stocks or the obligations of any such corporation.

To hold for investment, or otherwise to use, sell, or dispose of, any stock, bonds, or other obligations of any such other corporation; to aid in any manner any corporation whose stock, bonds, or other obligations are held or in any manner guaranteed by the company, and to do any other acts or things for the preservation, protection, improvement, or enhancement of the value of any such stock, bonds, or other obligations, or to do any acts or things designed for any such purpose; and while owner of any such stock, bonds, or other obligations, to exercise all the rights, powers, and privileges of ownership thereof, and to exercise any and all voting power thereon.

The business or purpose of the company is from time to time to do any one or more of the acts and things herein set forth; and it may conduct its business in other states, and in territories, and in foreign countries, and may have one office, or more than one office, and keep the books of the company outside of the state of

New Jersey, except as otherwise may be provided by law; and may hold, purchase, mortgage, and convey real and personal property, either in or out of the state of New Jersey.

Without in any particular limiting any of the objects and powers of the corporation, it is hereby expressly declared and provided that the corporation shall have power to issue bonds and other obligations in payment for property purchased or acquired by it, or for any other object in or about its business; to mortgage or pledge any stocks, bonds, or other obligations, or any property which may be acquired by it, to secure any bonds or other obligations by it issued or incurred; to guarantee any dividends, or bonds, or contracts, or other obligations; to make and perform contracts of any kind and description and in carrying on its business or for the purpose of attaining or furthering any of its objects, to do any and all other acts and things, and to exercise any and all other powers which a copartnership or natural person could do and exercise, and which now or hereafter may be authorized by law.

67. ACTS OF INCORPORATION FOR PRIVATE BUSINESS PURPOSES GRANTED IN THIS COUNTRY BEFORE THE YEAR 1800[1]

State	Aid of Agriculture	Banks	Bridges	Burying Ground	Canals	Commerce	Aid of Emigration	Fisheries	Insurance	Land Company	Logging	Manufactures	Mining	Improving Navigation	Roads	Waterworks	Total
New Hampshire	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	2
Massachusetts	1	7	25	...	12	3	1	...	5	...	2	5	...	4	7	16	88
Rhode Island	...	2	...	...	...	...	...	...	1	...	...	...	...	...	...	...	3
Connecticut	...	5	3	1	...	1	...	...	2	1	...	1	1	1	18	3	37
New York	...	4	1	...	1	1	...	1	3	...	...	4	...	...	5	1	21
New Jersey	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1
Pennsylvania	2	2	...	...	...	1	...	...	4	...	...	1	...	...	...	...	10
Delaware	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Maryland	...	3	...	...	2	...	...	...	4	...	...	...	...	2	...	...	11
Virginia	...	2	...	...	3	...	...	...	3	...	...	...	...	10	2	...	20
North Carolina	...	...	...	...	2	...	...	...	...	...	...	...	...	2	...	...	4
South Carolina	1	...	1	...	1	...	...	...	2	...	...	...	...	3	...	1	9
Georgia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0
Vermont	...	...	5	...	...	...	...	...	...	...	...	...	...	3	5	...	13
Kentucky	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	3
Tennessee	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0
United States	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Total	5	28	36	1	21	6	1	1	25	1	2	12	1	26	38	21	225

Of the 225 corporations shown in the above table 64 per cent were created in New England, states next in order being New York, Virginia, and Pennsylvania. Banks and insurance companies make up 24 per cent of the total number.

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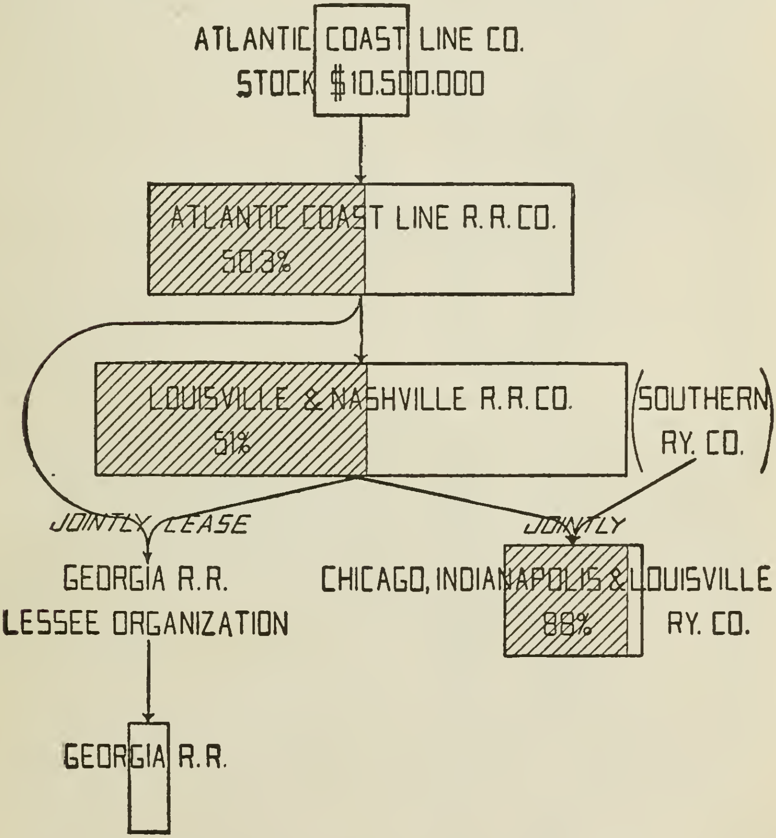
[1] From Simeon E. Baldwin, "Private Corporations," in *Two Centuries' Growth of American Law*, 1701–1901, p. 312. Charles Scribner's Sons, 1902.

68. THE HOLDING COMPANY[1]

The Atlantic Coast Line Company was chartered in Connecticut in 1889 for the purpose of consolidating under one ownership the network of southern railways along the Atlantic coast, these railways being amalgamated in 1900 into the Atlantic Coast Line Railroad Company. The Atlantic Coast Line Company, the holding company, on June 30, 1906, owned (including capital stock subscribed for but

INTERCORPORATE RELATIONSHIPS OF THE ATLANTIC COAST LINE SYSTEM

[Size of rectangles indicates relative amounts of capital stock outstanding. Cross-hatching shows percentage of capital stock owned by controlling company.]


ATLANTIC COAST LINE CO.
STOCK $10.500.000
ATLANTIC COAST LINE R.R. CO.
50.3%
LOUISVILLE & NASHVILLE R.R. CO.
51%
SOUTHERN RY. CO.
JOINTLY LEASE
JOINTLY
GEORGIA R.R. LESSEE ORGANIZATION
CHICAGO, INDIANAPOLIS & LOUISVILLE RY. CO.
88%
GEORGIA R.R.

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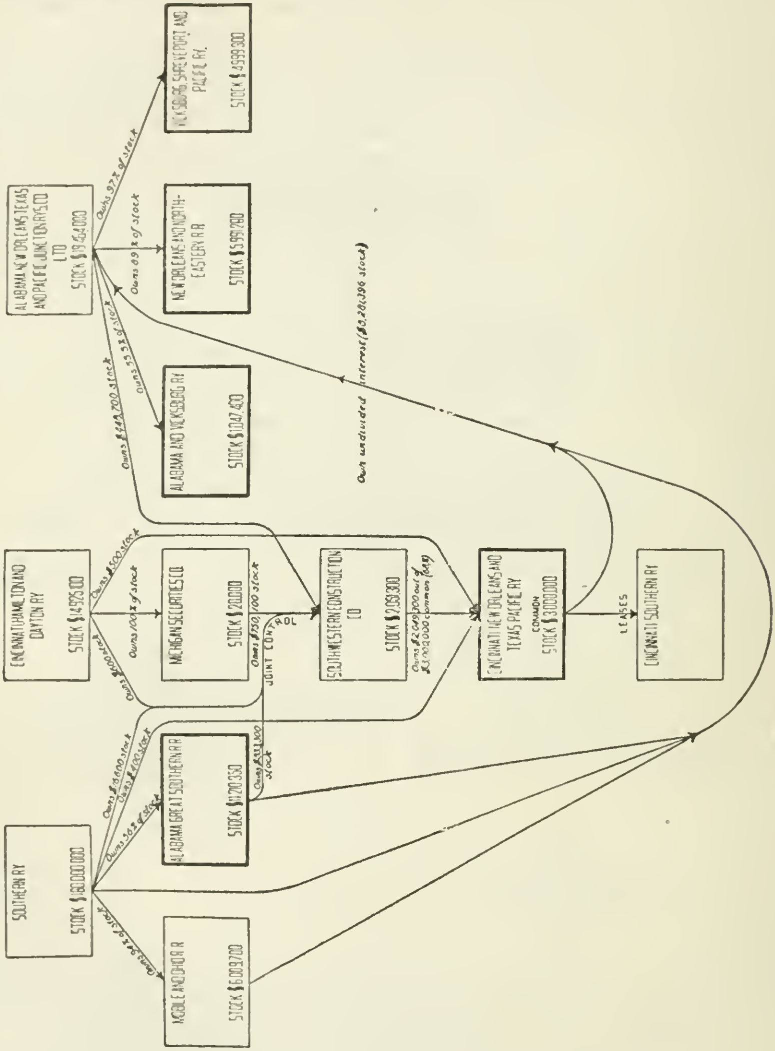
[1] From Interstate Commerce Commission, Special Report No. 1, *Intercorporate Relationships of Railways in the United States as of June 30, 1906* (1908), pp. 23–25.

not fully paid) $25,266,300 out of $50,134,200 of the stock of the Atlantic Coast Line Railroad Company, or a little over 50 per cent. It also owned $11,500,000 of the bonds of the same company. This stock ownership carried with it equities of very great value. This becomes clear when we observe that the Atlantic Coast Line Railroad owned on the same date $30,600,000 out of $60,000,000 or 51



INTERCORPORATE RELATIONSHIPS OF THE QUEEN AND CRESCENT ROUTE

[The rectangles with heavy outlines represent the railways comprising the Queen and Crescent Route.]

per cent of the stock of the Louisville and Nashville Railroad Company. This latter corporation and its controlling railway, the Atlantic Coast Line Railroad Company, were the lessees of the railway properties of the Georgia Railroad and Banking Company; and the Louisville and Nashville Railroad Company, jointly with the Southern Railway Company, owned 88 per cent of the stock of the Chicago, Indianapolis, and Louisville Railway Company. The capital stock of the Atlantic Coast Line Company was reduced in May, 1897, from $10,000,000 to $5,000,000 by the issue of certificates of indebtedness in lieu of the shares retired. In 1898 the stock was again restored to the original amount of $10,000,000 by a stock dividend of 100 per cent, representing the accumulated profits. The company had outstanding on June 30, 1906, $10,500,000 of stock (excluding $2,100,000 of stock subscribed for but not fully paid) and $13,000,000 of certificates of indebtedness. It therefore appears that an ownership of slightly over $5,000,000 of capital stock in this holding company controlled solely and jointly through ownership and lease a railway system of over 11,000 miles in extent, with a capitalization of over $725,000,000.[1]

69. A CLASSIFICATION OF BONDS[2]

A comprehensive basis for the classification of bonds is not to be found in the bond lists nor in current market reports. The names and classes thus arranged are for purposes of convenient reference and usually follow the practice of the local exchange. Generally speaking, bonds receive their titles from one or more of the following characteristics: (1) The character of the corporation using them; (2) the purpose of issue; (3) the nature of security given for payment; (4) the terms of payment, and (5) evidence of ownership and transfer. The first of these five characteristics is used as a basis for general classification. That is to say, quotations are usually arranged under the following heads:

Government—state and national.
Municipal and county.
Railroad, express, and steamship companies.
Traction companies.

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[1] [See also Selection 90: "Companies Whose Stocks Were Acquired by the United States Steel Corporation."—EDITORS.]

[2] Adapted from F. A. Cleveland, "Classification and Description of Bonds," in *Annals of the American Academy of Political and Social Science*, XXX,400– 411.

Gas, electric light, and water companies.
Bank and trust companies.
Investment companies.
Industrials.
Mining companies.
Miscellaneous.

CLASSIFICATION ACCORDING TO PURPOSE OF ISSUE

Among the many varieties of bonds which take their names from the purpose of issue the following may be noted:

Adjustment bonds, bridge bonds, construction bonds, consolidated bonds, car trust bonds, dock and wharf bonds, equipment bonds, extension bonds, founders' bonds, ferry bonds, general bonds, improvements bonds, interim bonds, interest bonds, purchase money bonds, refunding bonds, reorganization bonds, revenue bonds, subsidy bonds, terminal bonds, tunnel bonds, temporary bonds, unified bonds.

CLASSIFICATION OF BONDS ACCORDING TO THE CHARACTER OF SECURITY PROVIDED FOR PAYMENT

From the point of view of the security given for payment, bonds fall into two general classes, viz., (1) unsecured, and (2) secured. The secured bonds may again be divided into two general classes (*a*) those having personal security and (*b*) those secured by liens on specific property. These in turn may be subdivided as follows:

I. Unsecured.
    a) Government bonds.
    b) Corporate debentures.

II. Secured.
    a) Personal security.
        1. Indorsed bonds.
        2. Guaranteed bonds.
            a) Guaranteed as to principal.
            b) Guaranteed as to interest.
            c) Guaranteed as to both principal and interest.
    b) Lien security.
        1. By character of property pledged.
            a) Real property.
                1. Land grant bonds.
                2. Real estate bonds.

    - *b*) Personal property.
        - 1. Collateral trust bond.
        - 2. Sinking fund bonds.
- 2. By the character or priority of lien.
    - *a*) First, second, or third mortgage bonds.
    - *b*) General mortgage bonds.
    - *c*) Blanket mortgage bonds.
    - *d*) Consolidated mortgage bonds.
    - *e*) Income bonds.
    - *f*) Profit-sharing bonds.
    - *g*) Dividend bonds.
- 3. By the character of the holding participation receipts.

BONDS CLASSIFIED ACCORDING TO EVIDENCE OF OWNERSHIP AND TRANSFER

Considered from this viewpoint there are three classes, viz., coupon bonds, registered bonds, and coupon registered bonds.

Coupon bonds are issues the contracts for payment of interest on which are evidenced by separate coupons or contracts for payment, which fall due consecutively on the interest-paying dates. The coupons may be detached and constitute complete promissory notes in themselves, payable to bearer. The coupons are usually written on small sections of a sheet of paper attached to the principal obligation and as they mature are clipped off and presented for payment. They are frequently presented for payment through a bank as a check or draft would be.

Registered bonds are credit instruments the interest obligation in which is expressed in the same writing or paper as in a promissory note, the ownership of the bond being registered as a means of protecting the payee against loss, necessitating a formal transfer and registration to transfer the title when the old instrument is canceled and a new one issued. Interest is payable by money delivery or by check sent by mail to the address of the registered holder. Notice should be given of any change in address.

Registered coupon bonds are issues the principal of which is registered, the coupons being made payable to bearer.

In practice a single bond issue may have any number of these many distinguishing characteristics, so long as they are not in conflict. When applied to specific issues the number of classes may be equal to the mathematical possibility of the several elements described in combination. The advantage of the analytical classification here used is that by classifying and defining bond characteristics the terminology may be understood in any combination used.

70. EXAMPLES OF TYPICAL INVESTMENT SECURITIES

On the following pages are printed examples illustrating typical forms of bonds and of stock certificates.[1] The reproductions are in no cases facsimiles. They do, however, repeat the wording of the original documents.

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[1] The examples of bonds are taken from W. G. Sumner, *Specimens of Investment Securities*. E. P. Judd Co., 1901. The forms of stock certificates are taken from actual certificates.

1877 No. 00,000. *1907*

Four Per Cent. Consols of the United States

Principal and Interest payable in Coin at the Treasury of the United States

THE UNITED STATES OF AMERICA are indebted to the bearer in the sum of ONE HUNDRED DOLLARS. This bond is issued in accordance with the provisions of an Act of Congress entitled the "Act to authorize the refunding of the National Debt," approved July 14, 1870, amended by an Act approved January 20, 1871, and is redeemable at the pleasure of the United States after the first day of July, A.D. 1907, in Coin of the standard value of the United States on said July 14, 1870, with interest in such Coin from the day of the date hereof, at the rate of four per centum per annum, payable quarterly, on the first day of October, January, April, and July in each year. The principal and interest are exempt from the payment of all Taxes or Duties of the United States, as well as from Taxation in any form by or under State, municipal, or local authority.

Entered........................Recorded........................Washington, July 1, 1877
S. J. MILLARD, *Register of the Treasury*

Act of July 4, 1870

[120 Coupons appended. The face of No. 120 reads:]

The United States of America will pay the bearer One Dollar for three months' interest on Bond for $100 due July 1, 1907, 4 per cent. Consols.

JOHN ALLISON, *Register of the Treasury*

No.———— United States of America. State of Ohio. *$1,000.*

The Columbus Consolidated Street Railroad Company

First Mortgage Twenty Year Five Per Cent. Gold Bond

For Value Received, The Columbus Consolidated Street Railroad Company, a corporation organized and existing under the Laws of the State of Ohio and operating street railroads in the City of Columbus, promises to pay to the Central Trust Company of New York, Trustee, or to the bearer or registered owner hereof, One Thousand Dollars, in gold coin of the United States of America, of the present standard, on the first day of July, 1909, and to pay interest thereon at the rate of five per cent per annum from the first day of July, 1889, on the first days of January and July in each year, on the presentation and surrender of the coupons hereto annexed as they severally become due, until said principal sum shall be paid, both principal and interest of this bond being payable at the agency of said Railroad Company in the City of New York. This bond is subject to redemption on or after July 1, 1894, at 110 per cent of the par value thereof, with accrued interest, out of a sinking fund of $22,500 a year, beginning with that date, as provided in the mortgage herein described. This bond is one of a series of Eight Hundred bonds, of like tenor, date, and amount, numbered consecutively from One to Eight Hundred, both inclusive, and amounting in the aggregate to Eight Hundred Thousand Dollars, which are all equally secured by a mortgage of said Railroad Company in the nature of a conveyance in trust, dated July 1, 1889, and duly recorded, conveying all the property and franchises of said Railroad Company to said Trust Company, in trust, for the benefit of the holders of said bonds, to all the provisions of which mortgage this bond is subject. In case of default for six months after due demand in payment of any interest on any of said bonds, the principal of all thereof may be declared due, as provided in said mortgage. The principal of this bond may be registered on the books of said Railroad Company at its said agency, and registration thereof noted hereon, after which no transfer thereof shall be valid, except on said books, until after registered transfer to bearer, when the principal of the bond will again become transferable by delivery. The coupons annexed to this bond will always be transferable by delivery. This bond shall not be valid unless authenticated by the Certificate of the trustee of said mortgage.

In Witness Whereof, said Railroad Company has caused its corporate seal to be hereto affixed, and this bond to be subscribed by its President and Secretary, and the name of its Treasurer to be engraved on the several coupons hereto annexed, at the City of Columbus, in the State of Ohio, this first day of July in the year Eighteen Hundred and Eighty-nine.

……………………………………*Secretary* ……………………………………*President*

[*Title, on back*]

No............ The Columbus Consolidated Street Railroad Company First Mortgage $1000 Twenty Year Five per cent. Gold Bond. **Due July 1, 1909.** Interest payable January 1 and July 1. Principal and Interest payable at agency of the Company in the City of New York.

[*On the back*]

TRUSTEES' CERTIFICATE.—The Central Trust Company of New York, Trustee, hereby certifies that this bond is one of the series of Eight Hundred mortgage bonds described in the mortgage mentioned herein, bearing date the first day of July, 1889.

CENTRAL TRUST COMPANY OF NEW YORK, Trustee

By.................................*Vice-President*

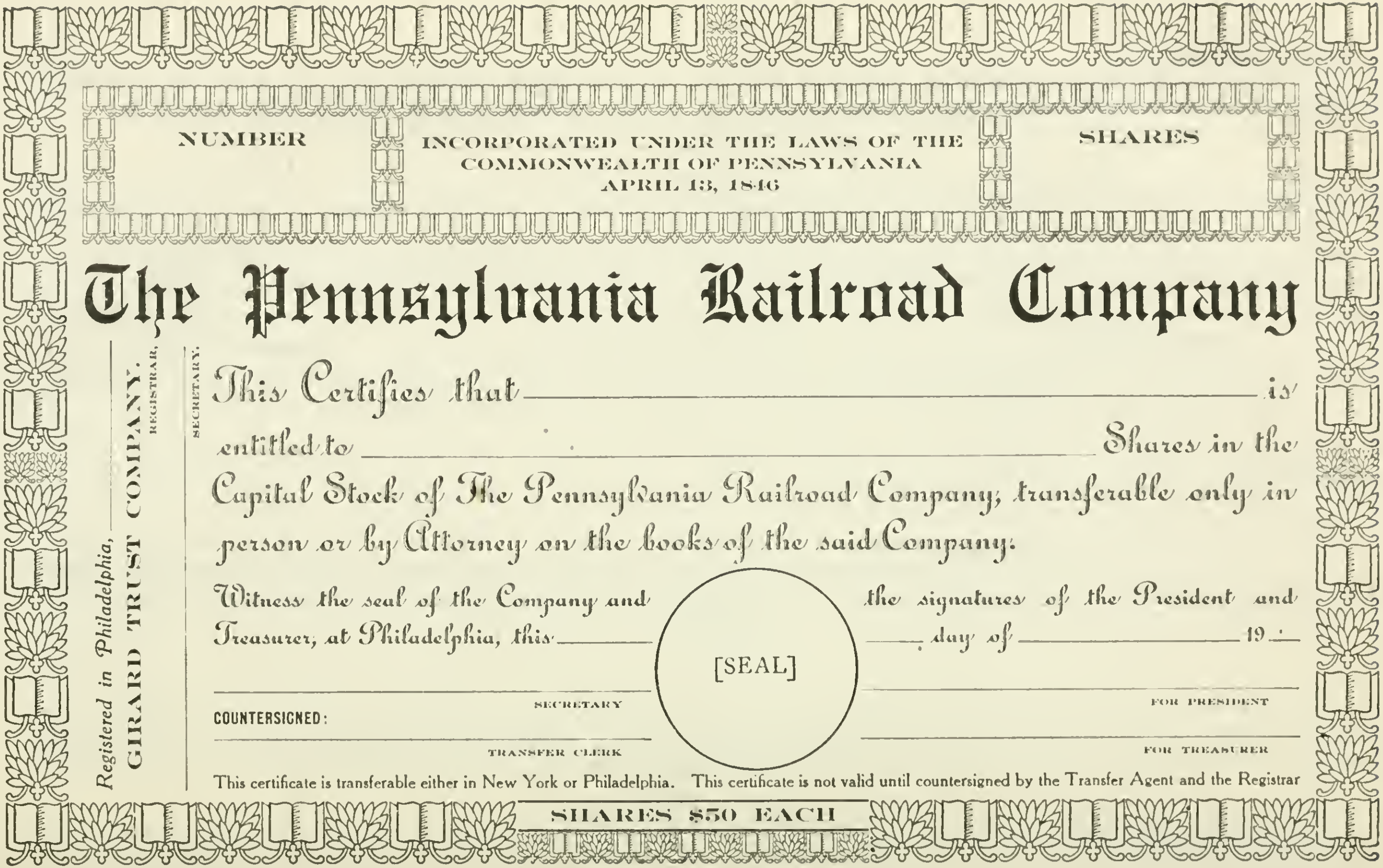
NOTICE!—No writing on this Bond, except by an officer of the Company.

DATE OF REGISTRY	IN WHOSE NAME REGISTERED	TRANSFER AGENT

[On the end, forty Coupons, numbered on the back, and dated each first day of January and July, from 1890 to 1909, the face of the first one reading:]

$25. Coupon No. 1.—On the first day of January, 1890, The Columbus Consolidated Street Railroad Company will pay the bearer, at its agency in the City of New York, Twenty-five Dollars, being the semi-annual interest then due on its First Mortgage Bond No...........

E. K. STENORF, *Treasurer*



NUMBER

INCORPORATED UNDER THE LAWS OF THE
COMMONWEALTH OF PENNSYLVANIA
APRIL 13, 1846

SHARES

The Pennsylvania Railroad Company

This Certifies that ______________________ is entitled to ______________________ Shares in the Capital Stock of The Pennsylvania Railroad Company; transferable only in person or by Attorney on the books of the said Company.

Witness the seal of the Company and the signatures of the President and Treasurer, at Philadelphia, this ________ day of ______________ 19__

[SEAL]

____
SECRETARY

____
FOR PRESIDENT

COUNTERSIGNED:

____
TRANSFER CLERK

____
FOR TREASURER

Registered in Philadelphia, ______________
GIRARD TRUST COMPANY.
REGISTRAR,
SECRETARY.

This certificate is transferable either in New York or Philadelphia. This certificate is not valid until countersigned by the Transfer Agent and the Registrar

SHARES $50 EACH

[FORM OF ASSIGNMENT ON THE BACK OF THE PENNSYLVANIA RAILROAD COMPANY STOCK CERTIFICATE]

Know all Men by these Presents,

that____, the undersigned, for value received, have bargained, sold, assigned, and transferred, and by these presents do bargain, sell, assign, and transfer, unto________________

____

____

______Shares of the Capital Stock of The Pennsylvania Railroad Company, and do hereby constitute and appoint

____

true and lawful Attorney, irrevocable, for____and in____ name and stead, but to the use of the above-named assignee to make and execute all necessary acts of assignment and transfer of the said stock on the books of the said Company, and Attorneys one or more to substitute with like full power for the purposes aforesaid, hereby ratifying and confirming all that said Attorney, or his substitute or substitutes shall lawfully do by virtue hereof.

In Witness Whereof,____have hereunto set

____hand and seal, this____________________day

of____________________one thousand nine hundred

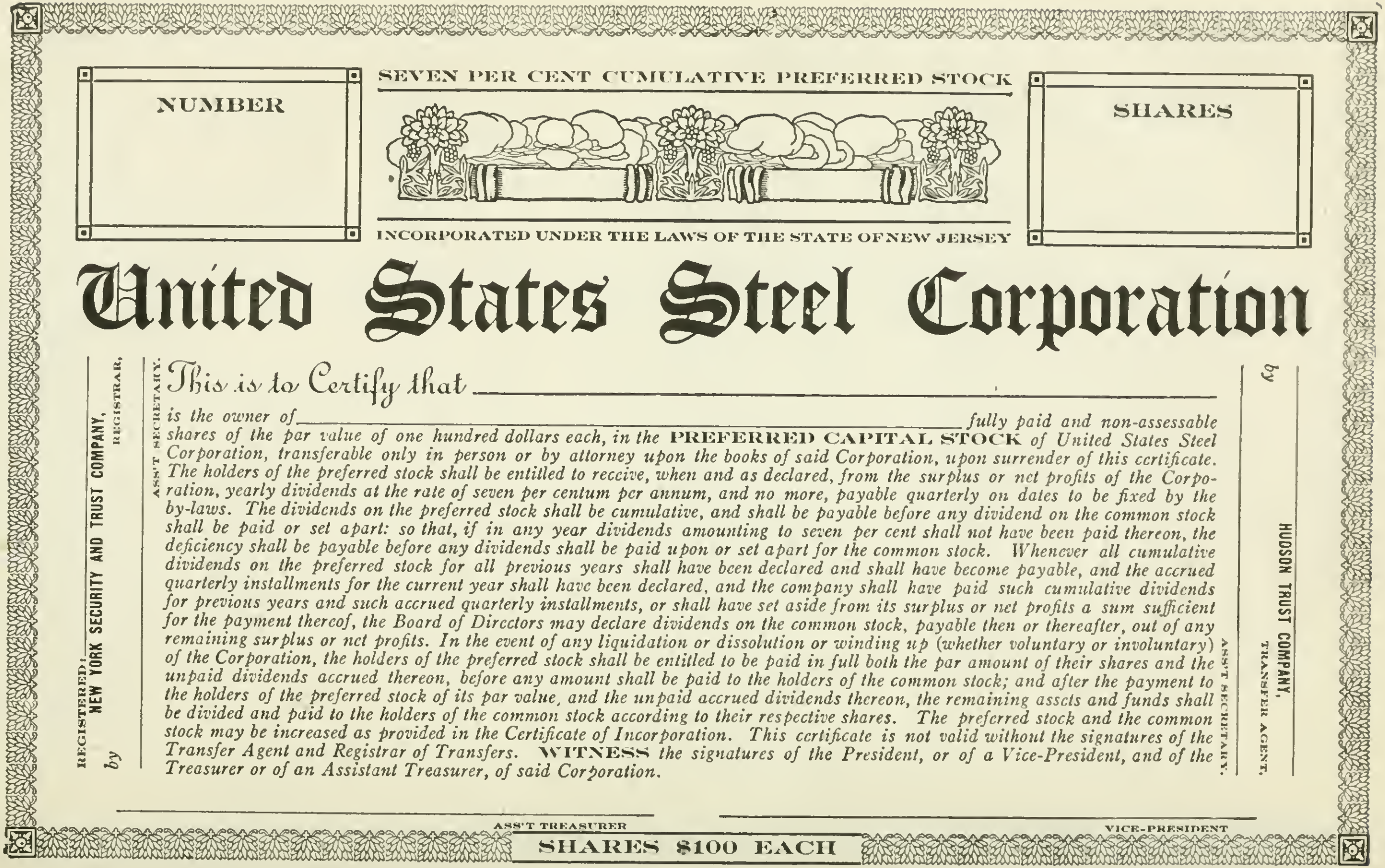
and____________________

______________________________*LS*

Signed, Sealed, and Delivered
in presence of

____

NOTICE: THE SIGNATURE TO THIS ASSIGNMENT MUST CORRESPOND WITH THE NAME AS WRITTEN UPON THE FACE OF THE CERTIFICATE, IN EVERY PARTICULAR, WITHOUT ALTERATION OR ENLARGEMENT, OR ANY CHANGE WHATEVER.



NUMBER

SEVEN PER CENT CUMULATIVE PREFERRED STOCK

INCORPORATED UNDER THE LAWS OF THE STATE OF NEW JERSEY

SHARES

United States Steel Corporation

This is to Certify that ______________________________

is the owner of ______________________________ fully paid and non-assessable shares of the par value of one hundred dollars each, in the **PREFERRED CAPITAL STOCK** of United States Steel Corporation, transferable only in person or by attorney upon the books of said Corporation, upon surrender of this certificate. The holders of the preferred stock shall be entitled to receive, when and as declared, from the surplus or net profits of the Corporation, yearly dividends at the rate of seven per centum per annum, and no more, payable quarterly on dates to be fixed by the by-laws. The dividends on the preferred stock shall be cumulative, and shall be payable before any dividend on the common stock shall be paid or set apart: so that, if in any year dividends amounting to seven per cent shall not have been paid thereon, the deficiency shall be payable before any dividends shall be paid upon or set apart for the common stock. Whenever all cumulative dividends on the preferred stock for all previous years shall have been declared and shall have become payable, and the accrued quarterly installments for the current year shall have been declared, and the company shall have paid such cumulative dividends for previous years and such accrued quarterly installments, or shall have set aside from its surplus or net profits a sum sufficient for the payment thereof, the Board of Directors may declare dividends on the common stock, payable then or thereafter, out of any remaining surplus or net profits. In the event of any liquidation or dissolution or winding up (whether voluntary or involuntary) of the Corporation, the holders of the preferred stock shall be entitled to be paid in full both the par amount of their shares and the unpaid dividends accrued thereon, before any amount shall be paid to the holders of the common stock; and after the payment to the holders of the preferred stock of its par value, and the unpaid accrued dividends thereon, the remaining assets and funds shall be divided and paid to the holders of the common stock according to their respective shares. The preferred stock and the common stock may be increased as provided in the Certificate of Incorporation. This certificate is not valid without the signatures of the Transfer Agent and Registrar of Transfers. **WITNESS** the signatures of the President, or of a Vice-President, and of the Treasurer or of an Assistant Treasurer, of said Corporation.

REGISTERED: NEW YORK SECURITY AND TRUST COMPANY,
REGISTRAR,
by
ASS'T SECRETARY.

HUDSON TRUST COMPANY,
TRANSFER AGENT,
by
ASS'T SECRETARY.

ASS'T TREASURER

VICE-PRESIDENT

SHARES $100 EACH

[FORM OF ASSIGNMENT ON THE BACK OF THE UNITED STATES STEEL CORPORATION PREFERRED STOCK CERTIFICATE]

*For value Received*____*hereby sell, assign, and transfer unto*

____

____________________________________ *Shares*

of the Capital Stock represented by the within Certificate and do hereby irrevocably constitute and appoint

____________________________________ *Attorney*

to transfer the said stock on the Books of the within named Corporation with full power of substitution in the premises.

*Dated*________________________*19*____

____

In Presence of

____

NOTICE: THE SIGNATURE TO THIS ASSIGNMENT MUST CORRESPOND WITH THE NAME AS WRITTEN UPON THE FACE OF THE CERTIFICATE, IN EVERY PARTICULAR, WITHOUT ALTERATION OR ENLARGEMENT, OR ANY CHANGE WHATEVER.

71. THE BASIS OF CAPITALIZATION[1]

I. ORIGINAL INVESTMENT

The popular theory on this subject is that capitalization should be based on the original cost of the property or the actual investment of capital in the enterprise. The stocks and bonds should represent money paid in. It is contended that investors are entitled to fair returns upon this amount, but to nothing more.

The proposition that capital be limited to the real investment seems, on first examination, to be a fair one, but further reflection will show that there are certain objections to such a rule. In some cases the actual amount invested in the enterprise would give too high and in other cases too low a capitalization. This basis would give too high a capitalization in cases where the original cost, on account of high price of labor, high rate of interest, incompetence of management, or other causes had been much greater than would be the present cost of building the road. Another factor has been cogently stated in a recent case—

> The state can not permit the capitalization of dishonesty, extravagance, or incompetence, nor can it permit the burden of obsolete industrial processes or administration to be laid on future generations.

It is unquestionable that in the case of many Western roads capital was recklessly squandered in the process of construction. The basis of original cost would give too low a capitalization in the case of roads which have been compelled, in the interest of unity and efficiency of service, to make heavy expenditures for the purchase of competing or contributing systems. The public has no legitimate claim to all gains resulting from economy in the refunding of indebtedness and in the operation of roads. It seems not unreasonable that skillful management should be capitalized to some extent.

II. EARNING CAPACITY

The preference of railroad financiers for earning capacity as a basis of railroad capitalization is easily understood. Capitalization on this basis enables a road to conceal the extent of its profits and to absorb increasing revenue without incurring public displeasure and arousing agitation for lower rates. Furthermore, a company that is highly capitalized can usually be sold to better advantage than one with a low capitalization. As has been observed, people seem to like to deal in large figures, and the average investor prefers to buy 200 shares of stock quoted at 50 and paying, say, 3 per cent, than 100 shares of stock quoted at par and paying 6 per cent. A large capitalization, therefore, is thought to confer some advantage for purposes of sale.

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[1] Adapted from the *Final Report* (Vol. XIX) *of the Industrial Commission* (1902), pp. 408–15

There are two legitimate arguments which may be advanced in favor of capitalization on the basis of earning capacity. One is that—

> in no other way can the risks incident to the novel enterprise, repelling timid capital, be overweighted by possible profits through premiums in the form of securities purchasable at discount.

This argument does not hold, however, in the case of railroad undertakings that involve no real initial risk; and it is probably true that the element of risk in most railroad enterprises projected in recent years is very inconsiderable. The second argument is more weighty. It is contended that a quick capital, in the form of credit or cash, is needed for the profitable operation of any plant. As stated—

> Without such working capital the plant, not being a "going" concern, loses much of its value. Consequently, it is urged, capital in excess of the value of the plant may rightfully be created for this purpose by the sale of stocks or bonds.

The force of this argument is considerably qualified by the consideration that a railroad corporation possesses a valuable franchise, attachable for debt, which seems to give sufficient security to enable it to obtain working capital by the ordinary means.

The chief objection to capitalization on the basis of earning capacity is that it obscures the relation between rates, wages, and profits. It is impossible to discover, without a careful appraisal of the property, whether an overcapitalized road is earning more than a fair return upon the investment. The principle is generally accepted at the present time that capital is not entitled to more than a certain fair rate of profits. The issuance of additional securities on the basis of increasing earning power makes it possible for a company covertly to secure exorbitant returns on the actual investment. This objection seems conclusive against the policy of full capitalization up to the limit of earning power.

III. COST OF REPRODUCTION

Neither original cost nor earning power, then, furnishes an entirely satisfactory basis of capitalization. As a substitute, cost of reproduction has been suggested, and in some cases applied. By this is meant simply the actual cost of laying down the roads at the present time, including proper allowance for value of terminals and right of way. Whether the present capitalization of American railroads is in excess of the probable cost of reproduction is disputed. By some it is asserted that railroad capital is much greater than the cost of constructing the roads at the present time. By others it is declared to be actually less.

IV. COMBINATION OF FACTORS IN CAPITALIZATION

It would seem that a fair basis of capitalization is to be found only by taking into consideration both cost of reproduction and earning capacity. The United States Supreme Court, in the case of *Smythe* vs. *Ames* has decided that the following items should be considered in estimating the value of railroad property: The original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses. The Nebraska Maximum Freight Rate Case also bears directly upon this issue.

A valuation of railroad property, with regard to both cost of reproduction and earning capacity, was undertaken recently by the Board of Tax Commissioners of Michigan. The commission undertook, first, to appraise the physical properties of the roads, and, second, to appraise what might be termed the nonphysical elements in their value. In appraising the physical properties the cost of reproduction was taken as a basis. This was determined by a thorough survey of the roads, made by experts. The nonphysical elements of railroad property, which constitute what is usually called the franchise value of railway corporations, were valued according to a plan devised by Professor Henry C. Adams. This value was determined (1) by deducting aggregate expenses of operation from gross earnings and adding the income from corporate investments; (2) by deducting from the total income thus obtained an amount properly chargeable to capital—that is, a certain per cent on the appraised value of the physical properties—rents paid for the lease of property operated and permanent improvements charged directly to income; (3) by capitalizing the remainder at a certain rate of interest. Exceptions from this procedure were made in the case of particular roads peculiarly situated. This method of valuation would seem to give the true basis of capitalization, which would then represent both the cost of reproducing the property and the franchise value arising from surplus earning capacity. Such a valuation of railroad property is useful for purposes both of taxation and of rate making.

The relation of capitalization to rates is a much-debated question. Opinions differ as to whether overcapitalization results in an increase of freight and passenger charges. Hon. Martin A. Knapp, Chairman of the Interstate Commerce Commission, testified before the Industrial Commission that he had not seen an instance in which rates seemed much to depend upon or be influenced by the capitalization of the road. Capitalization, he held, cuts no figure in the rate question. He admitted, however, that when the reasonableness of a particular rate was called into question, capitalization had to be considered in determining what the road in question ought to charge. In deciding upon the reasonableness or unreasonableness of a road's charges the Interstate Commerce Commission takes into consideration its financial condition. If a road is embarrassed with fixed charges of large amount, a rate may be justifiable which would be altogether unreasonable in the case of a road with only slight incumbrances of indebtedness.

Mr. T. L. Woodlock, a witness before the Industrial Commission, also maintains that rates are not affected by overcapitalization. Capitalization, he declares, has no bearing whatever on rates or earnings. It is a resultant of forces, and not a force itself. Similarly, Mr. H. T. Newcomb, then chief of the Division of Statistics of the United States Department of Agriculture, is of the opinion that stock watering has no material bearing on rates. In support of this opinion the general fact of the heavy decline in railroad rates since 1870 is cited. Mention is also made of particular roads which have increased their capitalization and at the same time reduced rates. The New York Central has increased its capitalization since 1892 from $202,000 to $348,000 per mile, yet rates have steadily declined. On the other hand, the Southern Pacific has a remarkably low capitalization of only $18,000 per mile, yet its rates are so high as to arouse public antagonism.

It may be conceded upon this point that fixed charges and dividends do not directly affect rates. The main consideration in the adjustment of railroad charges is the development of traffic. The cost of service enters in only so far as the actual expense of hauling goods constitutes a minimum below which rates are not reduced. Above this minimum, rates are determined by the possibility of developing traffic.

But indirectly capital does have some connection with rates. In the long run excessive capitalization tends to keep rates high; conservative capitalization tends to make rates low. Rates, as we have seen, are governed by "what the traffic will bear." An important element in determining what the traffic will bear is the pressure of competition, where this exists. Two kinds of competition are to be distinguished here, which have been termed, respectively, direct and indirect competition. Direct competition is that between lines covering the same territory or connecting the same terminals; indirect competition takes place between roads having no territory in common but serving producers who are competing for the supply of the same markets.

Our wheat roads must compete not only with those in Canada, but with Indian, Russian, and Argentine railroads, as well as with enormous maritime agencies all over the world. This sort of indirect competition in the distribution of products puts a certain check upon rates, even where direct competition is entirely absent. Where competition of either kind exists, rates are not dominated by the amount of capitalization. But competition in either form is not always present. Where it is absent, overcapitalization with high fixed charges and dividend requirements may lead to the raising of rates above the amount that would give reasonable returns upon the actual investment.

High capitalization tends, moreover, to keep up rates by preventing voluntary concessions which might otherwise have taken place. A company paying high dividends may find it expedient to lower its rates in order that the appearance of exorbitant profits may not excite a hostile public opinion. But if returns from excessive rates can be distributed in dividends on watered capital, the public is not aroused to demand reductions. High capitalization, therefore, has at least an indirect bearing on rates. The amount of railroad capital is not to be regarded as a matter of no concern to shippers.

72. METHODS OF STOCK WATERING[1]

Methods of inflating capitalization are various. Formerly sheer fraud was often practiced in issuing stock for speculative purposes. Between 1868 and 1872, for example, the share capital of the Erie Road was increased from $17,000,000 to $78,000,000 for the purpose of manipulating the market. This action led the Board of the New York Stock Exchange in 1869 to refuse to quote the Erie shares. Another fraudulent device consisted in paying excessive sums to dummy construction companies, composed of members of the railroad company and their friends. For instance, the original Southern Pacific road cost actually only $6,500,000; although it is a matter of record that $15,000,000 was paid a construction company, and the bankers' syndicate, which financed the road, received $40,000,000 in securities, or an average of $6 in bonds and stock for each dollar of actual cost. The same thing happened in connection with other Pacific roads. It was also not uncommon for directors of railroad companies to purchase other railroad properties, and then sell them to their own company at excessive prices. Again, stock has in many instances been given away by railroad companies simply as a bonus to bait purchasers of the bonds which the concerns were trying to float. It is well known that the New York Central, Erie, Reading, St. Paul, Chicago and Northwestern, gave away in this manner a portion of their earlier stock issues. These flagrant methods of stock watering have been largely discontinued during recent years.

The principal methods of stock watering still employed are the following:

1. The commonest is the payment of so-called stock dividends to shareholders. "These consist either of an outright bonus of new shares of stocks or bonds, or in a mitigated form, of stocks sold below par or at less than market quotations." Examples are the 80 per cent stock dividend of the New York Central, in 1868; the Reading scrip dividends between the years 1871 and 1876; the Chicago, Burlington and Quincy and Atchison stock dividends of 20 per cent and 50 per cent, respectively, in 1880 and 1881; and the famous Boston and Albany distribution of state stock in 1882.

2. Consolidation of railroad properties offers opportunities to increase capital surreptitiously in various ways. (*a*) One is through

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[1] From the *Final Report* (Vol. XIX) *of the Industrial Commission* (1902), pp. 405-7.

the issue of new stock to defray the entire expenses of betterment of the operating plant. (*b*) Sometimes, again, the constituent companies are gerrymandered so that the successful concerns with surplus earnings are combined with roads less favorably situated, thus making it possible to distribute earnings at a comparatively low dividend rate. (*c*) The third device connected with consolidation consists in substituting a high-grade for a low-grade security. A weak company, whose stock is quoted, say, at 50, may be merged in a second corporation whose stock stands at 100. The latter may then issue new stock worth $100 in exchange for the $50 stock, share for share.

3. A third method is the substitution of stock issues for funded debt. It has the advantage of giving great elasticity to future dividend possibilities. The substitution of 8 per cent stock for 4 per cent bonds facilitates the absorption of increasing earnings in the future. The stocks also permit of cessation of dividends during periods of depression. The substitution of stocks for bonds in this way is not, however, so harmful to the public interest, provided the stock issues are subject to control by state commissions.

4. Another expedient for increasing capitalization is the funding of contingent liabilities. Large amounts of such liabilities, in the form of bills payable, wages and salaries due, and the like, may be covered by issues of interest-bearing scrip. This is unquestionably bad financiering, as floating debts should, in general, be provided for out of earnings.

VII. EXAMPLES OF MODERN CAPITALISTIC ORGANIZATION

A. RAILROADS

73. TRANSPORTATION COSTS IN THE PIONEER MIDDLE WEST[1]

About the year 1805, the usual price of carriage over the country roads was stated to have been 50 cents for 100 pounds for every twenty miles. At this rate, corn, which before 1835 rarely sold for as much as 35 cents per bushel, would not stand the expense of moving twenty-five miles, even though it had been produced without cost. On the same basis, the area in which wheat could be sold at a profit to the farmer was limited to a radius of from fifty to seventy-five miles. In Kentucky, the most populous state in the West in 1805, "there was not a single species of product, with the exception of ginseng, that would bear the expense of carriage by land from that state to Philadelphia." In view of this situation, it is easy to see why the farmers turned their corn into whiskey, or fed it to hogs, driving the animals to market, rather than attempting to make a profit from the sale of the grain. The same condition that made it unprofitable for the farmer to ship bulky articles like grain, made it impossible for him to import from any great distance tools used on the farm, including heavy agricultural implements, and thus, in the absence of adequate means of transportation, the burden of manufacture fell upon the small mechanics, chiefly blacksmiths, in every locality—a fact which explains the wide dispersion of manufacturing industry during the pioneer days.

Not only were the various portions of the West in a large measure isolated from each other, but because of the distance down river by way of New Orleans and the ocean to the sea-board cities of the Atlantic, and on account of the bad roads over the Alleghany Mountains, the western region as a whole, before the building of the canals, was shut out from any considerable commercial relation with the East. These difficulties are reflected in the freight rates prevailing between the East and West during the pioneer period. In 1784 it cost $249 a ton to bring iron from Philadelphia to Presque Isle (Erie), Pennsylvania. Salt, a very necessary article, brought over the mountains on the backs of animals, sold for as much as eight and ten dollars a bushel, its great cost making the quest of salt springs one of the very first duties of the western pioneers. Between Pittsburg and Wheeling and the eastern cities the freight rate for years ranged from $5.00 to $8.00 per hundredweight. To the more distant points in the Ohio valley the rate was, of course, higher. The cost of bringing one hundred pounds from New Orleans to Pittsburg by flatboat or barge during the years 1786 to 1811 had been about $6.75 per hundredweight. In 1802 the cost of carriage from Philadelphia and Baltimore to Lexington, Kentucky, ranged from $7.00 to $8.00 per hundred. From Baltimore to Zanesville, Ohio, the rate was $10.00 in 1818, and up river from New Orleans to Zanesville, via Shippingport, it was $6.50.

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[1] Adapted from Isaac Lippincott, "Pioneer Industry in the West," in *The Journal of Political Economy*, XVIII, 270–72 (April, 1910).

74. WIDENING OF THE MARKET THROUGH IMPROVED TRANSPORTATION

Assuming wheat to be worth $1.00 a bushel and corn 50 cents a bushel at the market, and that there are 33 bushels in a ton of each, the following indicates the value of a ton of either at given distances from the market under varying methods of transportation. It is assumed that cost of transportation over the ordinary highway of

	WHEAT			CORN		
	Transported over			Transported over		
	Highway	Early Railroad	Modern Railroad	Highway	Early Railroad	Modern Railroad
Value at market	$33.00	$33.00	$33.00	$16.50	$16.50	$16.50
25 miles distant	29.25	32.63	32.88	12.75	16.13	16.38
50 miles distant	25.50	32.25	32.75	9.00	15.75	16.25
100 miles distant	18.00	31.50	32.50	1.50	15.00	16.00
150 miles distant	10.50	30.75	32.25	0	14.25	15.75
200 miles distant	3.00	30.00	32.00	....	13.50	15.50
300 miles distant	0	28.50	31.50	....	12.00	15.00
500 miles distant	....	25.50	30.50	....	9.00	14.00
1,000 miles distant	....	18.00	28.00	....	1.50	11.50
2,000 miles distant	....	3.00	23.00	....	0	6.50
3,000 miles distant	....	0	18.00	....	....	1.50
4,000 miles distant	....	....	13.00	....	....	0
5,000 miles distant	....	....	8.00	....	....	....
6,000 miles distant	....	....	3.00	....	....	....
7,000 miles distant	....	....	0	....	....	....

about 1850 was 15 cents per ton mile, over the railroad of that period $1\frac{1}{2}$ cents per ton mile, and over the railroad of today $\frac{1}{2}$ cent per ton mile. While the actual figures used are only approximations they give a substantially correct conception of the widening of the market for a commodity through improved means of transportation. If, moreover, we deduct from the values here indicated the farmer's cost of growing the grain, it will be better appreciated how extremely limited the inland markets were before the railroads came in.

75. THE RELATION OF THE TRANSPORTATION CHARGE TO PRICES[1]

The price paid by the housekeeper per dozen for eggs during the season of shipment seldom exceeds by more than five cents the price received by the western farmer who takes them to the country store. That is, the railroads bring eggs a thousand miles to New York for a cent or a cent and a half a dozen, and two thousand miles or so for about two cents and a half a dozen, the dealers taking the remainder of the five cents as payment for handling. The net difference between the price paid per pound for butter at the creamery, whether in New York City or in the Mississippi Valley, and that paid by the New York retail dealer averages about one and one-half cents for commission and one cent for freight.

In December, January, and February turkeys are taken from the Texas ranches to marketing centers, the transportation charge on ten birds weighing one hundred and twenty pounds being about 25 cents. After these ten birds have been dressed and packed they weigh about one hundred and two pounds, and the freight rate from Texas to New York is $1.50 for 100 pounds. That is, a Texas turkey that retails in the New York market for 20 cents a pound will have paid one and three-fourths cents per pound to the railroads that took it from the ranch to the concentration point and thence to the market. The farmer in Texas received about nine cents per pound, leaving a trifle over nine cents to be divided between the packing-house, the produce merchant, and the retail dealer.

The rail rate from Chicago to New York on grain and grain products for domestic consumption has been about $17\frac{1}{2}$ cents per 100 pounds; that is, a bushel of oats or corn or wheat, that may bring in New York anywhere from 40 cents to $1, has been brought from the western farm for from eight to fifteen cents. Hay that has yielded the farmer $18 or $19 a ton and sells in New York at about $24 has paid the railroads somewhere from $3 to $5 per ton, according to whether it came from the meadows of the Ohio or the Mississippi valleys.

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[1] Adapted from Logan G. McPherson, *Railway Freight Rates*, pp. 48–66. Henry Holt & Co., 1909.

On potatoes the freight rate per barrel containing about two and a half bushels is $1.05 from Florida, 65 cents from South Carolina, 45 cents from North Carolina, 30 cents from Virginia, and from this 12 cents per bushel the rate scales down to five or six cents per bushel from nearby regions. The freight rate on tomatoes from Florida is 25 cents per package of six baskets, from Texas 15 cents for twelve quarts, from Mississippi 76 cents per 100 pounds, and from the nearby farms eight cents per bushel of twenty-eight quarts. The freight rate on cantaloups to New York ranges from less than a cent for a melon from the Carolinas to about two and a half cents for that from California. Oranges from Florida to New York pay the railroads from four to nine cents a dozen, and those from California six to twelve cents a dozen, as they may be large or small. A three-pound can of tomatoes from Maryland pays the railroad about one-half cent per can.

The freight rates to New York on foodstuffs have been selected as typical of the transportation charges applying on such commodities in the main channels of traffic from the West to the East; and, in so far as fruits and vegetables are concerned, from the South to the East. The transportation charge per consumer's unit on these foodstuffs is a trifle less to Philadelphia and adjacent Delaware and New Jersey; another fraction lower to the great Pittsburgh district, and still lower to the cities of the West and South that are nearer the places of production. As prices of food products fluctuate within a fairly wide range and freight rates also fluctuate, though within but a very narrow range, the rates and prices specified in the foregoing, as well as in the succeeding paragraphs of this chapter, cannot be considered as of specific application at any given time in the future. They were exact at the time they were collated and will very closely approximate accuracy at any period.

As New York may be considered representative of the places to which edible products of the West and South are consigned, so also may St. Louis be considered a typical center of reception of the manufactured products of the East. The information given in the immediately following paragraphs was obtained from merchants and manufacturers of that city.

The transportation charge on the material entering into a pair of shoes made in a St. Louis factory averages one and one-quarter cents. The transportation charge required to place that pair of shoes in the hands of a consumer in any part of the United States averages between two and three cents. The material entering into an ordinary bedstead, such as retails in St. Louis for $8, will have paid the railroad about 40 cents. From ten pounds of nails made in Pittsburgh and retailed in St. Louis the railroad will have obtained a trifle over two cents, and from ten pounds of wire two and one-half cents. An axe made in the Pittsburgh district that retails in St. Louis for $1 will have paid the railroads one and one-fourth cents. At Kansas City that same axe will have paid freight of a fraction over four cents, and at Denver, where the retail price will have advanced to $1.30, it will have paid 14 cents freight. A padlock retailing in St. Louis at 50 cents will have paid the railroads a little more than one-half cent; at Kansas City it will have paid one cent, and at Denver, where the retail price advances to 75 cents, it will have paid two cents to the railroads. An eighteen-gallon galvanized iron tub that retails in St. Louis at 80 cents will have paid the railroad from place of manufacture two and three-tenths cents; to Kansas City the freight rate will have been six and one-fourth cents, and to Denver 15 cents, but here the retail price of that tub is $1. A stove that weighs two hundred pounds and retails in St. Louis for $18 will, in carload lots, pay 44 cents to Kansas City or Omaha, and retail there for $22; $1.48 to Denver, and retail there for $25; $2.50 to Seattle, and retail there for $30. When a housewife of St. Louis buys a dozen clothespins she has paid the railroad five ten thousandths of a cent. If she buys a washboard at 50 cents she has paid the railroad forty-two one hundredths of a cent. In Denver she would pay for that washboard 60 cents, of which the railroad would have received two cents. The higher rates and prices that have been specified as applying in Kansas City and Denver may also be taken as applicable to cities in the interior South and Southwest, such as Oklahoma, Fort Worth, and San Antonio.

In response to inquiries made concerning certain staple articles of daily and general use in various of the smaller cities and towns extending from Massachusetts to Georgia and Illinois, and from Michigan to Mississippi, it has been ascertained that throughout this region the transportation charge on such articles ranges as follows: On a man's suit of clothes, from two to eight cents; on calicoes and ginghams, from one-fiftieth of a cent to one-fifth of a cent a yard; the freight charge paid on the entire apparel of a fully dressed man or woman in this section would range perhaps from six or seven to 16 or 18 cents. The rate on an ordinary dining-room suite consisting of table, sideboard, six chairs, and a china closet would average from 75 cents to $5, on a parlor suite of sofa and four chairs from 50 cents to $4, on a bedstead and its equipment from 75 cents to $1.50, in each case from the factory to the home. The lumber used in the ordinary eight-room house will have paid the railroads from $35 to $150, and the brick from $6 or $8 to $50 or $60, as the kiln may be near or remote. A fifty-pound sack of flour from the mill, even at Minneapolis, in but a few cases has paid a freight rate of over eight or nine cents to the consumer. Products of the beef or the hog are carried from the western packing-houses throughout this territory at rates that vary from a fifth of a cent to not exceeding a cent per pound.

The transportation charge on a pair of rubber overshoes, including the rubber from South America, the cotton stock, and the shipment to the western markets, averages about two and one-half per cent of the cost of those markets. That is, a pair of rubber overshoes retailing for 75 cents will have paid for transportation, all told, less than one and nine-tenths cents.

The claim of the railroads that the rates on foodstuffs are not high enough to enter as a factor in fixing the selling price is fully substantiated by the statements of the dealers in such products. That is, the conditions are, with negligible exceptions, such that if the price obtainable in the markets be sufficient to encourage the growing of livestock, grains, dairy products, fruits, or vegetables, the rate of freight, from whatever locality to whatever market, is sufficiently low to allow the producer to enter that market. His profits are, however, as a matter of course, diminished by the amount of freight which he pays, and, as a rule, the farther the place of production from the markets the greater is the freight charge. The differences in the net return to the producer are almost invariably reflected in the value of the land, which is lower as the distance from the markets is greater. Largely because of the defective system of mercantile distribution the grower of foodstuffs obtains a smaller proportion of the price paid by the consumer than accrues to the grower of any other agricultural product.

The rates on raw materials are so adjusted as to permit the manufacture of any staple article at any logical place of manufacture. On the raw material of wearing apparel the freight rate is entirely unimportant. On the lumber that enters into building material, on the ore, coke, and limestone used in the manufacture of iron and steel the freight rate is sufficient to become an appreciable factor in the cost of manufacture. On brick, coal, and cement the selling price is the higher by the amount of the freight charge, which for distances sometimes not considerable exceeds the value of the commodity at the place of production. The freight charge, even on those heavier commodities, however, is far less in proportion to the wage of the day laborer as well as to the incomes and salaries received in the United States than in any other country.

Specific complaint in regard to the freight rates of the United States for many years has not, except in a small minority of cases, been based on the ground that they have prevented foodstuffs from finding a market, raw material from reaching places of manufacture, or finished products from distribution. While the difference of a cent or two in the rate of freight may not in the least interfere with the conduct of industry or commerce in the aggregate, such a slight difference may perhaps determine whether a manufacturer obtain his raw material from this or that source of supply, whether a wholesale dealer obtain his stock from the manufacturer in one, or the manufacturer in another city, whether a retail dealer make his purchases from the wholesale dealer in this city or in that city. That is, for example, the prices of the products at the sources of supply being equal, a difference in the rate of freight may determine whether Cleveland, Ohio, obtain potatoes from Michigan or from upper New York; whether a factory in Louisville obtain coal from the fields of southern Indiana or central Kentucky. A carpenter in Des Moines may perhaps pay a dollar for twenty pounds of nails without knowing or caring what the freight rate may have been, or where they may have come from. A difference, however, of a few cents a hundred pounds in the rate of freight may have led the hardware dealer to have purchased the nails in Chicago or St. Louis or even directly from Pittsburgh.

As the purchase of raw material tends toward the prosperity of the region where it is produced, as the operation of a factory tends to the increase of population, to appreciation in the value of real estate and the augmentation of business at the place of its location, so also does the growth of a wholesale business or of a retail business aid in the development of its surroundings. Producers, manufacturers, wholesalers, and retailers naturally all desire to extend their sales, to reach further markets in competition with their rivals, and are supported in this desire by the communities to whose welfare they contribute. Any difference in freight rates that gives a producer of raw material, a manufacturer, a wholesale distributer, or a retail merchant an advantage over a competitor of another locality is therefore promptly made the subject of complaint.

76. COSTS IN RAILROAD OPERATION[1]

The costs of railroad transportation may be divided into two classes: (1) the direct, or variable costs, that is those items of cost which represent the extra expenditure to which a rail carrier is put by the transportation of any particular shipment, e.g., extra fuel for power, handling of the freight, etc.; (2) indirect or constant costs, including those expenditures which do not vary with each shipment but which, within certain limits, remain the same irrespective of the amount of traffic carried, e.g., taxes, interest on bonds, a large share of the cost of maintaining roadbed, etc. While no sharp line can be drawn between direct and indirect costs, it is necessary to examine in the rough, the relationship existing between these two kinds of cost.

Railroad expenditures, aside from dividend payments, may be divided roughly as follows:

1. Maintenance of Way and Structures	15	per cent
2. Maintenance of Equipment	14	"
3. Conducting transportation	40	"
4. General expense	3	"
5. Fixed charges	28	"
Total	100	per cent

The expenditures for maintenance of way and structures are made up of several items. These expenditures vary, partly with the amount of traffic carried, and partly from other influences. Heavy hauling wears on rails, roadbed, bridges and culverts, but half loaded trains wear nearly as much as loaded ones. The elements of nature cause rails to rust, ties to rot, and wash out roadbeds, while bridges and culverts both rust or rot, and become out of date. Repairs and renewals of fences, road crossings, signs, and cattle guards are not in the least affected by the amount of freight hauled. Stations do not wear out, but on account of wind and weather need repainting and repairing. Docks and wharves are affected by the volume of business, and also by the elements. All wear and tear from the action of the elements goes on irrespective of the amount of traffic carried. While such wear and tear varies according to climate, soil, rainfall, number of bridges, etc., on the whole it may be said that of the total expenditures required for maintenance of way and structures, five-eighths represent constant (indirect) and three-eighths variable (direct) expenses. As maintenance of way and structures represents fifteen per cent of the total expenditures aside from dividend payments, this makes 9.37 per cent of the expenditures constant and 5.63 per cent variable.

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[1] Adapted from J. F. Strombeck, *Freight Classification*, pp. 11–18, 32. Houghton Mifflin Co., 1912.

Likewise the items included under the head of maintenance of equipment are part constant and part variable. Rolling stock generally needs repairs because worn out. These repairs vary largely with the traffic. Cars are, however, worn almost as much by carrying a half as a whole load. Engines deteriorate little more from hauling a heavy load than from a light one. Locomotives and cars are replaced by new ones quite as much because they become antiquated and out-of-date as because they are worn out. On the whole it is probably not unfair to apportion expenditures for maintenance of equipment equally between constant and variable expenses. Maintenance of equipment payments being 14 per cent of the total payments aside from dividend payments, 7 per cent may be called constant costs and 7 per cent variable.

Taking up the items which constitute the expenditures for conducting transportation, it is found that station expense, cost of station service and supplies, switchmen, flagmen and watchmen, signalling, and similar items are practically constant costs. Such expenses as wages of engineers and roundhouse men, cost of fuel and water, train service and train supplies, and items of similar nature are variable, although the expense for a full train does not differ much from that for an empty one.

Roughly speaking, one third of the expense of conducting transportation may be taken as constant. These expenditures being 40 per cent of the total aside from dividend payments there are 26.67 per cent to be added to the variable and 13.33 per cent to the constant expenditures.

The items of general expense are for the service as a whole. They are only slightly affected by changes in traffic and should be considered as constant. The several items included under fixed charges are also constant. These two, i.e., general expenses and fixed charges, amount to 3 per cent, and 28 per cent respectively.

Summarizing the above gives the following:

Expenditures (aside from dividend payments)	Indirect or Constant	Direct or Variable
1. Maintenance of way and structures	9.37	5.63
2. Maintenance of equipment	7.00	7.00
3. Conducting transportation	13.33	26.67
4. General expense	3.00	
5. Fixed charges	28.00	
Total	60.70	39.30

Thus, approximately 60 per cent of the expenditures analyzed are constant and 40 per cent are variable. It must be remembered that these expenditures do not include payments for dividends, reserve funds, etc., and therefore the proportion of an average freight rate, under average conditions, that goes to cover variable expenditures is less than 40 per cent of the total. This item of variable expenditures represents what might well be termed a *minimum rate* which must be charged on every shipment carried. Other traffic will not be burdened if additional freight is carried at this minimum rate. There are, however, cases in which the rate might properly be even less than this minimum.

One fundamental principle, having almost universal application, can be laid down, namely, *every freight rate must be at least sufficiently high to provide an amount of revenue which equals the direct costs of transporting the commodity upon which it applies.*

Granting this principle, there remains the question, how shall the indirect costs of a railway, and this item includes a fair return on investment, be apportioned upon the several unit shipments that are carried? This is where the real difficulty in rate-making begins. The problems connected with determining the minimum rate are largely for the accountant to solve. Those relating to the apportionment of the constant expenditures upon the unit shipments carried are vastly greater and of an entirely different nature, involving a consideration of all the industrial and social interests of the country.

The indirect cost may be apportioned in either of two ways: (1) each unit shipment may be made to bear a portion equal to that borne by each and every other unit, or (2) the amount that the various units shall bear may be, broadly speaking, in proportion to their ability to pay. The former method is impracticable because it would make the rate on some cheap commodities so high that they could not be transported. The second method is the one that has been adopted in order to secure the greatest good to carriers, shippers, and society in general.

It is possible to formulate a second fundamental principle governing classification and rates, as follows: *The indirect costs of transportation may be apportioned upon the units of traffic in unequal proportions, taking into consideration the ability of each particular commodity to pay, but in so doing, no undue or unreasonable preference or advantage whatsoever shall be given to any particular party, commodity, or locality.* This is, in fact, the governing principle of freight classification.

77. ADDED TRAFFIC PAYS[1]

The reason for the continued and rapid building of branches in spite of their apparent unproductiveness is simply this: They contribute traffic to the main line which, as it is merely an increment, costs always comparatively little to move, and often nothing at all. The company, therefore, receives from its contributed traffic rates for a haul of perhaps 500 miles at a cost for hauling due to only 100 or 200 miles. Rudely speaking, if we call the average cost per ton or passenger-mile 100, we may say:

Average cost per unit of traffic =	100
Extra passengers, singly, cost	0+
" " in car-loads cost	5 to 30
" " in train-loads cost	50
Extra freight in small lots costs often in both directions and usually in one direction	0+
" " in car-loads	5 to 20
" " in train-loads (and all car-loads must ordinarily be considered to be made up into extra trains in the direction of heaviest traffic) not over	60

Not unfrequently when a large part of the traffic of a branch goes over the main line in the direction of favoring grades it is handled over the main line at no appreciable extra cost by simply filling up trains, and the branch is then enormously profitable.

78. A RESULT OF RAILROAD COMPETITION[2]

The Empire Transportation Company, which was the organization which transported the oil over our lines, had engaged in the business of refining oil; the Standard Company complained to the officers of the Pennsylvania Railroad Company that they did not get fair treatment from the Empire Transportation Company in the matter of the distribution of cars when cars were scarce; that they did not believe they got as good rates as the Empire Transportation Company did, and that in every possible way the Empire Transportation Company, they believed, favored their own refineries as against theirs, and they took the position and stated that they would not be subject; they would not transport their oil by an organization which was also a rival of theirs in the refining business. We endeavored to try to get those difficulties harmonized; talked of getting the Empire Transportation Company to lease its refineries to the Standard Oil Company or put them into other hands, but we did not succeed in doing that and bringing these two companies together in that, and it resulted in a complete breach, and the Standard Oil Company took their business off our road, and we had a very severe contest from the time they did so until the 17th of October. During that time the Empire Transportation Company itself did all the refining it could in competition with the Standard, and all the other refineries not connected with the Standard Oil Company we induced to come on our line and ship, but we did it at a very great loss to the company. We paid very large rebates; in fact, we took anything we could get for transporting their oil; in some cases we paid out rebates more than the whole freight. I recollect one instance where we carried oil to New York for Mr. Ohlen, or some one he represented, I think, at 8 cents less than nothing. . . . . I do not say any large quantities, but oil was carried at that rate.

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[1] From A. M. Wellington, *The Economic Theory of the Location of Railways*, pp. 732-33. John Wiley & Sons, 1891.

[2] From testimony of A. J. Cassatt, of the Pennsylvania R.R. Co., in *House Reports*, 50th Congress, 1st session, IX, 175–76.

79. SOME FORMS OF RAILROAD DISCRIMINATION[1]

The following are a few of the most important discriminations and the methods by which they were obtained:

(1) For about ten years the New England territory has been in control of the Standard Oil Company by reason of the refusal of the New York, New Haven, and Hartford road and of the Boston and Maine road, on all but a few divisions, to prorate—i.e., to join in through rates—on oil shipped from west of the Hudson River, and by means of the adjustment of published rates.

The Standard is entitled to the advantage of its water shipping points in reaching New England, but that advantage was greatly and unfairly increased when the railroads, by refusing to prorate, virtually kept independent refiners from using all-rail routes. The refusal to prorate increased the rail rates from the West from 8 to 10 cents per hundred pounds. These railroads do prorate on all other commodities; their refusal to do so in the case of oil amounted to imposing a substantial tax on all consumers in the region they cover, and is also a heavy discrimination against the smaller refiners.

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[1] From the *Report of the Commissioner of Corporations on the Transportation of Petroleum* (1906), pp. xxii–xxv.

(2) The Standard Oil Company has been able to absolutely control for many years the sale of oil in the northeastern part of New York and in a portion of Vermont by means of secret rates from its refineries at Olean and Rochester.

The Pennsylvania Railroad has given the Standard a rate of 9 cents a barrel from Olean, N.Y., to Rochester, while the independent refineries situated in territory adjacent to Olean were given a rate of 38 cents a barrel. By means of this 9-cent rate, in combination with a rate from Rochester to Norwood, N.Y., a virtually secret and very low rate from Norwood, N.Y., to Burlington, and secret local rates therefrom, the Standard has been able to supply central and northern Vermont with oil at a rate of from 15 to 21 cents per hundred pounds, whereas no independent refiner could reach that territory from western Pennsylvania save by a rate varying from 33 to 50 cents per hundred pounds.

The saving to the Standard during 1904 by the secret rate from Olean to Rochester alone was $115,000. This and other less important rates from Olean were unknown to the independent refiners, and were not published on the ground that they were wholly State rates; yet in fact they were used for oil consigned to points beyond the State boundary of New York. Furthermore, all the shipments from Olean on these secret rates were blind-billed—i.e., the rates were not shown on the waybills.

(3) The Standard Oil Company has maintained absolute control of almost the whole section of the country south of the Ohio River and east of the Mississippi by means of secret rates and open discriminations in rates from Whiting, Ind.

For example, the published tariff rate from Whiting, Ind., the great western refinery of the Standard, to Birmingham, Ala., was 44 cents per hundred pounds. For at least ten years the Standard, by means of a secret combination of rates by way of Grand Junction, Tenn., over the lines of the Chicago and Eastern Illinois, the Illinois Central, and the Southern Railway, has shipped oil to Birmingham for 29½ cents. The Toledo competitor, no farther distant, had to pay 47½ cents.

A great area in the South has been reached by this same secret combination at rates averaging one-fourth less than the published rates. The total saving to the Standard on these rates has been about $70,000 per year.

Again, the open rate from Whiting to Evansville, Ind., has been for many years 11 cents. The Standard has for about ten years shipped oil to Evansville, for local use and for many points beyond in the Southeast, at so-called State rates of 6 cents and 8¼ cents. The freight paid by the Standard in this case has been about $10,000 a year less than the open rate.

The rates to this same territory from the independent refining points at Toledo and Cleveland were from 8 to 28 cents per hundred pounds, or from ½ to 1½ cents a gallon higher than the rate paid by the Standard.

The records of the Chicago and Eastern Illinois Railroad Company show plainly that these Grand Junction and Evansville rates were intended to be secret, were given for the sole benefit of the Standard, and were handled as secret rates with the knowledge of Standard officials.

(4) The Standard Oil Company has for at least ten years shipped oil from Whiting to East St. Louis, Ill., at a rate of 6 or 6¼ cents on three of the five railroads running between those places, while the only duly published rate on all roads has been 18 cents during all that period. The discrimination saved the Standard about $240,000 in 1904.

For many years East St. Louis has been the gateway for oil shipments by the Standard into the Southwest. The rates from the independent refining points of Ohio to East St. Louis have been about 12 cents higher than the rate from Whiting, whereas on other commodities of similar grade these points pay only about 5 cents more than Whiting.

Whiting is located in Indiana, about two miles from the Illinois line. East St. Louis is in Illinois, just across the river from St. Louis. The secret low rates were given by the Chicago, Burlington and Quincy, Chicago and Alton, and Chicago and Eastern Illinois railroads. They were not published on the ground that they were State rates. In dealing with these rates, one of the roads—the Chicago and Alton—falsely waybilled the freight at 18 cents, and collected from the Standard at 6 cents. The Chicago and Eastern Illinois blind-billed its shipments. The Chicago, Burlington and Quincy, billed and collected at the 6-cent rate, but it was none the less secret.

(5) In the Kansas-Territory field there are some unfair open rates. A more important discrimination has been in the arbitrary weights fixed by the railroads on crude oil and fuel oil. This discrimination prevents the Kansas producer from selling his crude oil, especially that of low gravity, advantageously in competition with the fuel oil produced by the Standard and the small local refiners.

Crude oil is charged on the basis of 7.4 pounds per gallon; its actual weight is about 7.2 pounds. Fuel oil produced by the refineries is charged at 6.4 pounds; it actually weighs about 7.6 pounds. A barrel of crude oil shipped from Kansas to St. Louis is charged nearly 10 cents more than a barrel of fuel oil; this difference in freight charges is equal to more than one-third of the price of low-grade Kansas crude.

This discrimination has existed for about four years. It does not exist in any other field. The legislation of Kansas in 1905 put an end to it so far as shipments within the State are concerned.

(6) In California direct rebates, as well as discriminations by the use of secret rates, have been given on oil.

These rebates and discriminations benefited the Standard to the extent of about $100,000 in 1904. The Associated Oil Company, the Union Oil Company, and some consumers of oil also received rebates and secret rates, but the Standard apparently received as much as all other interests combined. These favors were almost invariably denied the ordinary shipper. On shipments to Arizona, rebates on state rates were received by the Standard in connection with interstate shipments; this virtually was a rebate on interstate business. Owing to the fact that fuel oil is extensively sold under contract on the Pacific coast rate discriminations obtained by a few favored shippers have enabled them to monopolize markets for long periods.

Great injury has been inflicted by railroads upon independent shippers through discriminations in the distribution of tank cars.

(7) Open published rates from Whiting into a large part of the United States have given the Standard Oil Company an unfair advantage of from 1 to 20 cents per hundred pounds.

This discrimination seriously limits independent refiners in some markets, and shuts them out completely from other markets. It is accomplished by the use of commodity rates—that is, rates which apply only to petroleum and its products—and by refusal to prorate.

The true principle of commodity rate making is to more nearly equalize competitive conditions, but the general effect of commodity rates on oil has been to give the Standard relatively much lower rates to common markets than those given to its competitors.

For instance, in shipments to New Orleans and other points on the lower Mississippi River and the Gulf, the ordinary class rates on similar low-grade articles from Toledo, Cleveland, and Pittsburgh are only 2 cents above the rates from Whiting. The commodity rates on oil are from 9½ to 13½ cents above the rates from Whiting. The normal principle of commodity rates would tend to make the charge the same from all four of these points, instead of increasing the differential.

Prior to the establishment of the Whiting refinery the railroads west of the Mississippi prorated with the eastern roads on oil shipments from the Pennsylvania and Ohio districts into most parts of the West and Southwest. After the establishment of the Whiting refinery these roads refused to prorate from points east of Whiting. This refusal increased the natural disadvantage of the eastern refineries by from 1 to 19½ cents per hundred pounds. This discrimination is the more conspicuous in the case of the southwestern railroads because they do prorate with the railroads from Chicago to St. Louis on oil from Whiting going to certain sections.

80. EXTRACTS FROM THE INTERSTATE COMMERCE ACT[1]

SECTION 1. (*As amended June 29, 1906, April 13, 1908, and June 18, 1910.*) That the provisions of this Act shall apply to any corporation or any person or persons engaged in the transportation of oil or other commodity, except water and except natural or artificial gas, by means of pipe lines, or partly by pipe lines and partly by railroad, or partly by pipe lines and partly by water, and to telegraph, telephone, and cable companies (whether wire or wireless) engaged in sending messages from one State, Territory, or District of the United States to any other State, Territory, or District of the United States or to any foreign country, who shall be considered and held to be common carriers within the meaning and purpose of this Act, and to any common carrier or carriers engaged in the transportation of passengers or property wholly by railroad (or partly by railroad and partly by water when both are used under a common control, management, or arrangement for a continuous carriage or shipment), from one State or Territory of the United States or the District of Columbia to any other State or Territory of the United States or the District of Columbia, or from one place in a Territory to another place in the same Territory, or from any place in the United States to an adjacent foreign country, or from any place in the United States through a foreign country to any other place in the United States, and also to the transportation in like manner of property shipped from any place in the United States to a foreign country and carried from such place to a port of trans-shipment, or shipped from a foreign country to any place in the United States and carried to such place from a port of entry either in the United States or an adjacent foreign country. . . . .

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[1] An act to regulate commerce, approved February 4, 1887, and in effect April 5, 1887 (24 Statutes at Large, 379), as amended by an act approved March 2, 1889 (25 Statutes at Large, 855), by an act approved February 10, 1891 (26 Statutes at Large, 743), by an act approved February 8, 1895 (28 Statutes at Large, 643), by an act approved June 29, 1906 (34 Statutes at Large, 584), by a joint resolution approved June 30, 1906 (34 Statutes at Large, 838), by an act approved April 13, 1908 (35 Statutes at Large, 60), by an act approved February 25, 1909 (35 Statutes at Large, 648), and by an act approved June 18, 1910 (36 Statutes at Large, 539).

The term "common carrier" as used in this Act shall include express companies and sleeping car companies. The term "railroad" as used in this Act shall include all bridges and ferries used or operated in connection with any railroad, and also all the road in use by any corporation operating a railroad, whether owned or operated under a contract, agreement, or lease, and shall also include all switches, spurs, tracks, and terminal facilities of every kind used or necessary in the transportation of the persons or property designated herein, and also all freight depots, yards, and grounds used or necessary in the transportation or delivery of any of said property; and the term "transportation" shall include cars and other vehicles and all instrumentalities and facilities of shipment or carriage, irrespective of ownership or of any contract, express or implied, for the use thereof and all services in connection with the receipt, delivery, elevation, and transfer in transit, ventilation, refrigeration or icing, storage, and handling of property transported; and it shall be the duty of every carrier subject to the provisions of this Act to provide and furnish such transportation upon reasonable request therefor, and to establish through routes and just and reasonable rates applicable thereto; and to provide reasonable facilities for operating such through routes and to make reasonable rules and regulations with respect to the exchange, interchange, and return of cars used therein, and for the operation of such through routes, and providing for reasonable compensation to those entitled thereto.

All charges made for any service rendered or to be rendered in the transportation of passengers or property and for the transmission of messages by telegraph, telephone, or cable, as aforesaid, or in connection therewith, shall be just and reasonable; and every unjust and unreasonable charge for such service or any part thereof is prohibited and declared to be unlawful. . . . .

And it is hereby made the duty of all common carriers subject to the provisions of this Act to establish, observe, and enforce just and reasonable classifications of property for transportation, with reference to which rates, tariffs, regulations, or practices are or may be made or prescribed, and just and reasonable regulations and practices affecting classifications, rates, or tariffs, the issuance, form, and substance of tickets, receipts, and bills of lading, the manner and method of presenting, marking, packing, and delivering property for transportation, the facilities for transportation, the carrying of personal, sample, and excess baggage, and all other matters relating to or connected with the receiving, handling, transporting, storing, and delivery of property subject to the provisions of this Act which may be necessary or proper to secure the safe and prompt receipt, handling, transportation, and delivery of property subject to the provisions of this Act upon just and reasonable terms, and every such unjust and unreasonable classification, regulation, and practice with reference to commerce between the States and with foreign countries is prohibited and declared to be unlawful.

No common carrier subject to the provisions of this Act shall, after January first, nineteen hundred and seven, directly or indirectly, issue or give any interstate free ticket, free pass, or free transportation for passengers, except to its employees and their families, its officers, agents, surgeons, physicians, and attorneys at law; to ministers of religion, [and to certain others, mainly those engaged in charitable work]. . . . .

From and after May first, nineteen hundred and eight, it shall be unlawful for any railroad company to transport from any State, Territory, or the District of Columbia, to any other State, Territory, or the District of Columbia, or to any foreign country, any article or commodity, other than timber and the manufactured products thereof, manufactured, mined, or produced by it, or under its authority, or which it may own in whole or in part, or in which it may have any interest, direct or indirect, except such articles or commodities as may be necessary and intended for its use in the conduct of its business as a common carrier.

Any common carrier subject to the provisions of this Act, upon application of any lateral, branch line of railroad, or of any shipper tendering interstate traffic for transportation, shall construct, maintain, and operate upon reasonable terms a switch connection with any such lateral, branch line of railroad, or private side track which may be constructed to connect with its railroad, where such connection is reasonably practicable and can be put in with safety and will furnish sufficient business to justify the construction and maintenance of the same; and shall furnish cars for the movement of such traffic to the best of its ability without discrimination in favor of or against any such shipper. . . . .

SEC. 2. That if any common carrier subject to the provisions of this Act shall, directly or indirectly, by any special rate, rebate, drawback, or other device, charge, demand, collect, or receive from any person or persons a greater or less compensation for any service rendered, or to be rendered, in the transportation of passengers or property, subject to the provisions of this act, than it charges, demands, collects, or receives from any other person or persons for doing for him or them a like and contemporaneous service in the transportation of a like kind of traffic under substantially similar circumstances and conditions, such common carrier shall be deemed guilty of unjust discrimination, which is hereby prohibited and declared to be unlawful.

SEC. 3. That it shall be unlawful for any common carrier subject to the provisions of this act to make or give any undue or unreasonable preference or advantage to any particular person, company, firm, corporation, or locality, or any particular description of traffic, in any respect whatsoever, or to subject any particular person, company, firm, corporation, or locality, or any particular description of traffic to any undue or unreasonable prejudice or disadvantage in any respect whatsoever.

Every common carrier subject to the provisions of this Act shall, according to their respective powers, afford all reasonable, proper, and equal facilities for the interchange of traffic between their respective lines, and for the receiving, forwarding, and delivering of passengers and property to and from their several lines and those connecting therewith, and shall not discriminate in their rates and charges between such connecting lines; but this shall not be construed as requiring any such common carrier to give the use of its tracks or terminal facilities to another carrier engaged in like business.

SEC. 4. (*As amended June 18, 1910.*) That it shall be unlawful for any common carrier subject to the provisions of this Act to charge or receive any greater compensation in the aggregate for the transportation of passengers, or of like kind of property, for a shorter than for a longer distance over the same line or route in the same direction, the shorter being included within the longer distance, or to charge any greater compensation as a through route than the aggregate of the intermediate rates subject to the provisions of this Act; but this shall not be construed as authorizing any common carrier within the terms of this Act to charge or receive as great compensation for a shorter as for a longer distance: *Provided, however,* That upon application to the Interstate Commerce Commission such common carrier may in special cases, after investigation, be authorized by the Commission to charge less for longer than for shorter distances for the transportation of passengers or property; and the Commission may from time to time prescribe the extent to which such designated common carrier may be relieved from the operation of this section.....

Whenever a carrier by railroad shall in competition with a water route or routes reduce the rates on the carriage of any species of freight to or from competitive points, it shall not be permitted to increase such rates unless after hearing by the Interstate Commerce Commission it shall be found that such proposed increase rests upon changed conditions other than the elimination of water competition.

SEC. 5. That it shall be unlawful for any common carrier subject to the provisions of this Act to enter into any contract, agreement, or combination with any other common carrier or carriers for the pooling of freights of different and competing railroads, or to divide between them the aggregate or net proceeds of the earnings of such railroads, or any portion thereof; and in any case of an agreement for the pooling of freights as aforesaid, each day of its continuance shall be deemed a separate offense.

SEC. 6. That every common carrier subject to the provisions of this Act shall file with the Commission created by this Act and print and keep open to public inspection schedules showing all the rates, fares, and charges for transportation. . . . .

No change shall be made in the rates, fares, and charges or joint rates, fares, and charges which have been filed and published by any common carrier in compliance with the requirements of this section, except after thirty days' notice to the Commission and to the public published as aforesaid, which shall plainly state the changes proposed to be made in the schedule then in force and the time when the changed rates, fares, or charges will go into effect; and the proposed changes shall be shown by printing new schedules, or shall be plainly indicated upon the schedules in force at the time and kept open to public inspection: *Provided,* That the Commission may, in its discretion and for good cause shown, allow changes upon less than the notice herein specified, or modify the requirements of this section in respect to publishing, posting, and filing of tariffs, either in particular instances or by a general order applicable to special or peculiar circumstances or conditions. . . .

SEC. 10. . . . .

Any common carrier subject to the provisions of this Act, or, whenever such common carrier is a corporation, any officer or agent thereof, or any person acting for or employed by such corporation, who, by means of false billing, false classification, false weighing, or false report of weight, or by any other device or means, shall knowingly and willfully assist, or shall willingly suffer or permit, any person or persons to obtain transportation for property at less than the regular rates then established and in force on the line of transportation of such common carrier, shall be deemed guilty of a misdemeanor, and shall, upon conviction thereof in any court of the United States of competent jurisdiction within the district in which such offense was committed, be subject to a fine of not exceeding five thousand dollars, or imprisonment in the penitentiary for a term of not exceeding two years, or both, in the discretion of the court, for each offense. [Similar penalty for the shipper]. . . .

SEC. 13. (*As amended June 18, 1910.*) That any person, firm, corporation, company, or association, or any mercantile, agricultural, or manufacturing society or other organization, or any body politic or municipal organization, or any common carrier, complaining of anything done or omitted to be done by any common carrier subject to the provisions of this Act, in contravention of the provisions thereof, may apply to said Commission by petition, which shall briefly state the facts; whereupon a statement of the complaint thus made shall be forwarded by the Commission to such common carrier, who shall be called upon to satisfy the complaint, or to answer the same in writing, within a reasonable time, to be specified by the Commission. If such common carrier within the time specified shall make reparation for the injury alleged to have been done, the common carrier shall be relieved of liability to the complainant only for the particular violation of law thus complained of. If such carrier or carriers shall not satisfy the complaint within the time specified, or there shall appear to be any reasonable ground for investigating said complaint, it shall be the duty of the Commission to investigate the matters complained of in such manner and by such means as it shall deem proper.

Said Commission shall, in like manner and with the same authority and powers, investigate any complaint forwarded by the railroad commissioner or railroad commission of any State or Territory at the request of such commissioner or commission, and the Interstate Commerce Commission shall have full authority and power at any time to institute an inquiry, on its own motion, in any case and as to any matter or thing concerning which a complaint is authorized to be made, to or before said Commission by any provision of this Act, or concerning which any question may arise under any of the provisions of this Act, or relating to the enforcement of any of the provisions of this Act. And the said Commission shall have the same powers and authority to proceed with any inquiry instituted on its own motion as though it had been appealed to by complaint or petition under any of the provisions of this Act, including the power to make and enforce any order or orders in the case, or relating to the matter or thing concerning which the inquiry is had excepting orders for the payment of money. No complaint shall at any time be dismissed because of the absence of direct damage to the complainant.

SEC. 15. (*As amended June 29, 1906, and June 18, 1910.*) That whenever, after full hearing upon a complaint made as provided in section thirteen of this Act, or after full hearing under an order for investigation and hearing made by the Commission on its own initiative (either in extension of any pending complaint or without any complaint whatever), the Commission shall be of opinion that any individual or joint rates or charges whatsoever demanded, charged, or collected by any common carrier or carriers subject to the provisions of this Act for the transportation of persons or property or for the transmission of messages by telegraph or telephone as defined in the first section of this Act, or that any individual or joint classifications, regulations, or practices whatsoever of such carrier or carriers subject to the provisions of this Act are unjust or unreasonable or unjustly discriminatory, or unduly preferential or prejudicial or otherwise in violation of any of the provisions of this Act, the Commission is hereby authorized and empowered to determine and prescribe what will be the just and reasonable individual or joint rate or rates, charge or charges, to be thereafter observed in such case as the maximum to be charged, and what individual or joint classification, regulation, or practice is just, fair, and reasonable, to be thereafter followed, and to make an order that the carrier or carriers shall cease and desist from such violation to the extent to which the Commission finds the same to exist, and shall not thereafter publish, demand, or collect any rate or charge for such transportation or transmission in excess of the maximum rate or charge so prescribed, and shall adopt the classification and shall conform to and observe the regulation or practice so prescribed. All orders of the Commission, except orders for the payment of money, shall take effect within such reasonable time, not less than thirty days, and shall continue in force for such period of time, not exceeding two years, as shall be prescribed in the order of the Commission, unless the same shall be suspended or modified or set aside by the Commission, or be suspended or set aside by a court of competent jurisdiction. Whenever the carrier or carriers, in obedience to such order of the Commission or otherwise, in respect to joint rates, fares, or charges, shall fail to agree among themselves upon the apportionment or division thereof, the Commission may, after hearing, make a supplemental order prescribing the just and reasonable proportion of such joint rate to be received by each carrier party thereto, which order shall take effect as a part of the original order.

Whenever there shall be filed with the Commission any schedule stating a new individual or joint rate, fare, or charge, or any new individual or joint classification, or any new individual or joint regulation or practice affecting any rate, fare, or charge, the Commission shall have, and it is hereby given, authority, either upon complaint or upon its own initiative without complaint, at once, and if it so orders, without answer or other formal pleading by the interested carrier or carriers, but upon reasonable notice, to enter upon a hearing concerning the propriety of such rate, fare, charge, classification, regulation, or practice; and pending such hearing and the decision thereon the Commission upon filing with such schedule and delivering to the carrier or carriers affected thereby a statement in writing of its reasons for such suspension may suspend the operation of such schedule and defer the use of such rate, fare, charge, classification, regulation, or practice, but not for a longer period than one hundred and twenty days beyond the time when such rate, fare, charge, classification, regulation, or practice would otherwise go into effect; and after full hearing, whether completed before or after the rate, fare, charge, classification, regulation, or practice goes into effect, the Commission may make such order in reference to such rate, fare, charge, classification, regulation, or practice as would be proper in a proceeding initiated after the rate, fare, charge, classification, regulation, or practice had become effective: *Provided*, That if any such hearing can not be concluded within the period of suspension, as above stated, the Interstate Commerce Commission may, in its discretion, extend the time of suspension for a further period not exceeding six months. At any hearing involving a rate increased after January first, nineteen hundred and ten, or of a rate sought to be increased after the passage of this Act, the burden of proof to show that the increased rate or proposed increased rate is just and reasonable shall be upon the common carrier, and the Commission shall give to the hearing and decision of such questions preference over all other questions pending before it and decide the same as speedily as possible.

The Commission may also, after hearing, on a complaint or upon its own initiative without complaint, establish through routes and joint classifications, and may establish joint rates as the maximum to be charged and may prescribe the division of such rates as hereinbefore provided and the terms and conditions under which such through routes shall be operated, whenever the carriers themselves shall have refused or neglected to establish voluntarily such through routes or joint classifications or joint rates; and this provision shall apply when one of the connecting carriers is a water line. The Commission shall not, however, establish any through route, classification, or rate between street electric passenger railways not engaged in the general business of transporting freight in addition to their passenger and express business and railroads of a different character, nor shall the Commission have the right to establish any route, classification, rate, fare, or charge when the transportation is wholly by water, and any transportation by water affected by this Act shall be subject to the laws and regulations applicable to transportation by water. . . . .

If the owner of property transported under this Act directly or indirectly renders any service connected with such transportation, or furnishes any instrumentality used therein, the charge and allowance therefor shall be no more than is just and reasonable, and the Commission may, after hearing on a complaint or on its own initiative, determine what is a reasonable charge as the maximum to be paid by the carrier or carriers for the services so rendered or for the use of the instrumentality so furnished, and fix the same by appropriate order, which order shall have the same force and effect and be enforced in like manner as the orders above provided for under this section. . . . .

SEC. 16. (*Amended March 2, 1889, June 29, 1906, and June 18, 1910.*) That if, after hearing on a complaint made as provided in section thirteen of this Act, the Commission shall determine that any party complainant is entitled to an award of damages under the provisions of this Act for a violation thereof, the Commission shall make an order directing the carrier to pay to the complainant the sum to which he is entitled on or before a day named. . . .

Sec. 20. (*As amended June 29, 1906, February 25, 1909, and June 18, 1910.*) That the Commission is hereby authorized to require annual reports from all common carriers subject to the provisions of this Act, and from the owners of all railroads engaged in interstate commerce as defined in this Act; to prescribe the manner in which such reports shall be made, and to require from such carriers specific answers to all questions upon which the Commission may need information. . . . Such reports shall also contain such information in relation to rates or regulations concerning fares or freights, or agreements, arrangements, or contracts affecting the same as the Commission may require; and the Commission may, in its discretion, for the purpose of enabling it the better to carry out the purposes of this Act, prescribe a period of time within which all common carriers subject to the provisions of this Act shall have, as near as may be, a uniform system of accounts, and the manner in which such accounts shall be kept. . . .

Sec. 24. (*Added June 29, 1906*). That the Interstate Commerce Commission is hereby enlarged so as to consist of seven members with terms of seven years, and each shall receive ten thousand dollars compensation annually. The qualifications of the Commissioners and the manner of the payment of their salaries shall be as already provided by law. Such enlargement of the Commission shall be accomplished through appointment by the President, by and with the advice and consent of the Senate, of two additional Interstate Commerce Commissioners. . . . Not more than four Commissioners shall be appointed from the same political party. . . .

(*Commerce Court and other additional provisions in the Act of June 18, 1910.*) (Sec. 1.) That a court of the United States is hereby created which shall be known as the Commerce Court and shall have the jurisdiction now possessed by circuit courts of the United States and the judges thereof over all cases of the following kinds:

First. All cases for the enforcement, otherwise than by adjudication and collection of a forfeiture or penalty or by infliction of criminal punishment, of any order of the Interstate Commerce Commission other than for the payment of money.

Second. Cases brought to enjoin. set aside, annul, or suspend in whole or in part any order of the Interstate Commerce Commission.

Third. Such cases as by section three of the Act entitled "An Act to further regulate commerce with foreign nations and among the States," approved February nineteenth, nineteen hundred and three, are authorized to be maintained in a circuit court of the United States.

Fourth. All such mandamus proceedings as under the provisions of section twenty or section twenty-three of the Act entitled "An Act to regulate commerce," approved February fourth, eighteen hundred and eighty-seven, as amended, are authorized to be maintained in a circuit court of the United States.

Nothing contained in this Act shall be construed as enlarging the jurisdiction now possessed by the circuit courts of the United States or the judges thereof, that is hereby transferred to and vested in the Commerce Court.

The jurisdiction of the Commerce Court over cases of the foregoing classes shall be exclusive; but this Act shall not affect the jurisdiction now possessed by any circuit or district court of the United States over cases or proceedings of a kind not within the above-enumerated classes.

The Commerce Court shall be a court of record, and shall have a seal of such form and style as the court may prescribe. The said Court shall be composed of five judges, to be from time to time designated and assigned thereto by the Chief Justice of the United States, from among the circuit judges of the United States, for the period of five years, except that in the first instance the Court shall be composed of the five additional circuit judges to be appointed as hereinafter provided, who shall be designated by the President to serve for one, two, three, four, and five years, respectively, in order that the period of designation of one of the said judges shall expire in each year thereafter. In case of the death, resignation, or termination of assignment of any judge so designated, the Chief Justice shall designate a circuit judge to fill the vacancy so caused and to serve during the unexpired period for which the original designation was made. After the year nineteen hundred and fourteen no circuit judge shall be redesignated to serve in the Commerce Court until the expiration of at least one year after the expiration of the period of his last previous designation. The judge first designated for the five-year period shall be the presiding judge of said Court, and thereafter the judge senior in designation shall be the presiding judge.

Each of the judges during the period of his service in the commerce court shall, on account of the regular sessions of the court being held in the city of Washington, receive in addition to his salary as circuit judge an expense allowance at the rate of one thousand five hundred dollars per annum.

The President shall, by and with the advice and consent of the Senate, appoint five additional circuit judges no two of whom shall be from the same judicial circuit, who shall hold office during good behavior and who shall be from time to time designated and assigned by the Chief Justice of the United States for service in the circuit court for any district, or the circuit court of appeals for any circuit, or in the commerce court. . . . .

(SEC. 2.) That a final judgment or decree of the Commerce Court may be reviewed by the Supreme Court of the United States if appeal to the Supreme Court be taken by an aggrieved party within sixty days after the entry of said final judgment or decree. Such appeal may be taken in like manner as appeals from a circuit court of the United States to the Supreme Court, and the Commerce Court may direct the original record to be transmitted on appeal instead of a transcript thereof. The Supreme Court may affirm, reverse, or modify the final judgment or decree of the Commerce Court as the case may require.

Appeal to the Supreme Court, however, shall in no case supersede or stay the judgment or decree of the Commerce Court appealed from, unless the Supreme Court or a justice thereof shall so direct, and appellant shall give bond in such form and of such amount as the Supreme Court, or the justice of that court allowing the stay, may require.

An appeal may also be taken to the Supreme Court of the United States from an interlocutory order or decree of the Commerce Court granting or continuing an injunction restraining the enforcement of an order of the Interstate Commerce Commission, provided such appeal be taken within thirty days from the entry of such order or decree.

Appeals to the Supreme Court under this section shall have priority in hearing and determination over all other causes except criminal causes in that court. . . . .

81. RAILWAY RATE THEORIES OF THE INTERSTATE COMMERCE COMMISSION[1]

The Commission began its work with the idea that *value of service* was the underlying principle of railway rates. It was unable, however, to furnish such a precise definition or explanation of this term as would enable it to be used as a concrete measure of a reasonable rate.

At the outset of its labors the Commission was not inclined to place much confidence in *cost of service* as a principle for determining rates. The feeling that rates fixed in this way would prevent the free movement of certain commodities explains in part the attitude of the Commissioners, but the main objection has seemed to be the practical impossibility of determining the exact cost of transporting a particular commodity. That there are obstacles—insuperable ones—to any direct determination of the cost of performing a specific service in transportation no one familiar with the subject would deny. It has not been by means of a direct determination of the costs, however, that the Commission has sought a solution. The method followed has been that of comparison. The ascertainable costs of moving a certain commodity have been compared with the costs of moving the same commodity in a different manner or under different circumstances. The method of *comparative costs* does not yield absolutely accurate results but it is oftentimes sufficient for practical purposes and we must remember that economics, like law, does not concern itself with trifles.

The method of comparative costs has not always been applicable however. In some cases, as we have seen, *distance* may be used as a means of measuring the reasonableness of rates. Considered as the sole element in the determination of rates, distance would of course yield unsatisfactory results; but it is nevertheless, as the Commission says, "in the absence of other influences a controlling element." Its value as a measuring instrument lies not in the fact that it is independent of costs but that in the absence of other influences it reflects costs.

The same thing may be said of the effort of the Commission to preserve for a place its *natural advantages of location.* A place can have no advantage of location which a carrier is bound to respect other than that which is due to its ability to place its products on the market at less cost than can its competitors. Rates based on the principle of recognizing natural advantages of location are therefore true to the cost of service principle.

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[1] Adapted from M. B. Hammond, "Railway Rate Theories of the Interstate Commerce Commission," in *The Quarterly Journal of Economics*, XXV, 529–38 (May, 1911).

Even in the absence of these indirect methods of determining costs, the Commission has found it possible to reach the same goal by other methods. It is a fundamental principle of economics that free and untrammeled *competition*, operating over a long period of time, tends to reduce prices to a cost basis. We have therefore only to apply this principle to railway rates to see that rates which have been fixed by competition, provided that this competition has been of a normal sort, will be the same as they would be if all the costs of service had been calculated and rates had then been based on costs.

One other alternative has been presented to the Commission in certain cases where it has been unable to calculate the costs of service and this, too, has been in accordance with well-known economic principles. What the economist always means by *cost price* is that price which covers not only actual expenditures made in production but which also leaves a *normal rate of return upon all the capital invested.* In those cases, therefore, in which the Commission has been called upon to deal with a whole system of rates; where it would have been clearly impossible to have calculated all the costs; where even the comparative method was lacking because the increase of rates had been made general, and where competition was not present, it has still been possible to ask whether these rates have yielded the same results, measured by their effect on earning power, as would have resulted if the cost of service principle had been applied.

Two other considerations emphasized by the Commission, *value of commodity*, and *sectional or class interests*, still remain to be dealt with. With reference to the last-named consideration it is hard to see how it can be made to fit in with any defensible theory of railway rates. Many of the cases in which value of commodity was made the basis of the Commission's decision might easily have been grouped under the heading of cost of service. This is because differences in rates, measured by differences in values of commodities, were allowed because the carrier was assumed to have accepted greater risks in transporting the more valuable commodities. In other cases where low rates were prescribed for low-grade commodities, for example such articles as are usually given commodity rates, it is obvious that the low rates could have been justified as easily on the principle that the costs of moving these commodities were low as on the basis of their low values.

If the conclusion be accepted that the tendency of the Interstate Commerce Commission's decisions is, on the whole, toward a cost of service theory of rate-making, there still remains the task of so stating a theory of rates as to bring in the various considerations which we have seen the Commission has emphasized as factors in rate-making, and show how they can be related to the fundamental principle. It is perhaps well to say that nowhere has the Commission undertaken to state such a comprehensive theory of rate-making.

1. In any system of government-made or government-regulated railway rates, it would seem that this fundamental economic principle should be kept in mind: to perform the service of transporting persons and goods with the least possible expenditure of social energy.

2. One transportation route or one transportation system should never be allowed to take from another route or system, merely as a consequence of competition, traffic which the latter route or system can carry at less expense.

3. Rates should be so adjusted as never to take from a place its natural geographical advantages of location; but natural advantages should not be so construed as to mean monopoly privileges.

4. Railway rates as a whole should just cover costs as a whole, allowing for a normal rate of return on capital actually invested, a normal return for labor of all sorts, and for depreciation, but not for betterments. This would not mean that superior efficiency in railway management was not entitled to reap the rewards of its superiority in the same way as it does in the ordinary industrial establishment where competition rules. On the other hand, the rule must not be construed to mean that any investment in a railroad, no matter how foolishly or recklessly made, is entitled to exact high rates from persons and industries along the line in order to earn current interest rates or dividends. Railway property is not more sacred than other property, nor are railway investors immune from the consequences of their own acts.

5. Each commodity transported should, as far as possible, be made to defray its own share not only of operating and terminal costs but also of the fixed costs and dividends. It is possible under modern accounting methods to determine these costs with an approximate degree of accuracy for the principal commodities and classes of traffic. The rates on other commodities may be determined by

comparing their ascertainable costs with those of the principal commodities, and to a lesser extent by a comparison of the relative values of the commodities.

6. Differences in distance may be made a test of the reasonableness of differences in rates where other conditions appear to be similar; yet the general rule must be kept in mind that though the aggregate charge should increase as distance increases, the ton-mile rate should decrease.

7. Where the application of none of the above principles seems practicable, competition, which has been conducted in a normal manner over a period of several years, may be assumed to have established a fair relation of rates.

8. A reasonable rate is one which yields a reasonable compensation for the service rendered. If a given rate is reasonable in this sense, an increase in the price of the commodity or in the profits to the producer will not be a valid excuse for increasing the railway rate. The carrier will justly share in the increased prosperity of the producer by securing a larger traffic in this commodity.

The possibility of applying these rules to the business of railway transportation is proved by the fact that the application of every one of them can be shown by illustrations taken from the Commission's decisions. Their consistent application would mean that the railroads would neither tax the industries of the country nor have their own investments sacrificed; they would not build up one place or industry at the expense of some other place or industry; they would not take from some persons or commodities their proportionate share of the costs of transportation and impose them upon other persons and commodities; and finally they would not by their system of rate-making retard industrial progress or have their own development hindered by failing credit or lack of revenue.

82. VALUATION OF PUBLIC UTILITIES

I[1]

If a railroad corporation has bonded its property for an amount that exceeds its fair value, or if its capitalization is largely fictitious, it may not impose upon the public the burden of such increased rates as may be required for the purpose of realizing profits upon such excessive valuation or fictitious capitalization; and the apparent value of the property and franchises used by the corporation, as represented by its stocks, bonds, and obligations, is not alone to be considered when determining the rates that may be reasonably charged. . . . .

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[1] *Smyth* vs. *Ames*, 169 U.S. 466 (1898).

But it is equally true that the corporation performing such public services and the people interested in its business and affairs have rights that may not be invaded by legislative enactment in disregard of the fundamental guaranties for the protection of property. The corporation may not be required to use its property for the benefit of the public without receiving just compensation for the services rendered by it. How such compensation may be ascertained, and what are the necessary elements in such inquiry, will always be an embarrassing question. . . . .

We hold, however, that the basis of all calculations as to the reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public. And in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration, and are to be given such weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property. What the company is entitled to ask is a fair return upon the value of that which it employs for the public convenience. On the other hand, what the public is entitled to demand is that no more be exacted from it for the use of a public highway than the services rendered by it are reasonably worth.

II[1]

The most important fact to be determined is the value of the property. The value to be ascertained is the value at the time of the inquiry. Only that property is to be considered which was then used and useful in supplying San Francisco with water. Among the proper matters to be considered are the original cost of construction; the amount expended in permanent improvements; the amount and market value of stock and bonds; the present, as compared with original, cost of construction; the probable earning capacity of the property under the particular rates prescribed by the ordinance for each of the years in question; the sums required to meet operating expenses; what it will cost to obtain water, equal in quantity and quality to the present supply, from the next most available source; the depreciation suffered by that portion of the plant which is worn by use or action of the elements, or shorn of its value by newer, cheaper, and more efficient appliances and machinery; the fact that the plant has a franchise and is a going concern, with an established business and thousands of customers, whose buildings are connected with the distributing system; and appreciation in value since the various properties constituting the plant were acquired. To each of these factors just and proper weight must be given; and finally, the result must be the reasonable and fair value of the plant as between the company and the public.

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[1] *Spring Valley Water Works* vs. *San Francisco*, 192 Fed. 137 (1911).

III[1]

The most important facts on which to base a determination of the value of a railroad property are:

First. The actual cost of construction.
Second. Cost of reproduction, new.
Third. The depreciated value.
Fourth. The amount and market value of stock and bonds issued, with a full financial history of the road.
Fifth. The density of population and traffic.
Sixth. The nature and permanence of population and traffic.
Seventh. Facilities for doing business.
Eighth. Physical characteristics.
Ninth. The amount of earnings and operating expenses.

83. SUGGESTIONS FOR EFFECTIVE PUBLIC UTILITY REGULATION[2]

The first essential of effective control of public service corporations is an efficient administrative body. Experience indicates that a board or commission best meets the requirements of the problem. The requisite powers are too great to be entrusted to a single person, and a large body is too cumbersome for efficiency. A commission of three members is probably preferable to a larger board, even if of equal individual ability. Moreover, a given sum laid out in salaries is more likely to secure competent men if divided among three men than if distributed to five. As to the method of selection, appointment seems to secure better results than popular election. The term of office should not be less than six years, one commissioner being appointed every second year. Commissioners should devote their entire time to the duties of the office and should have no connection, by stock ownership or otherwise, with any public utility.

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[1] Statement of J. C. Lawrence, *Proceedings of National Association of Railway Commissioners*, 1910.

[2] Adapted from E. H. Downey, "The Regulation of Urban Utilities in Iowa," in *Applied History*, I, 208–27. State Historical Society of Iowa, 1912.

With respect to personnel, one commissioner should be an attorney skilled in railroad law and should act as the commission's counsel, *ex officio*. Another commissioner should be a public utility expert familiar with methods of valuation and accounting.

Public utility regulation is a scientific matter. If the regulation is to be effective, the commission must be composed of high grade men, and it must be provided with a staff of rate experts, accountants, statisticians, and engineers at least equal to the staff of any public service company in the state.

The act should embrace the following utilities: (*a*) railroads, interurban railroads, express companies, sleeping car, dining car, refrigerator car, tank car and other car lines, pipe lines, steamboats, and all other carriers between cities; (*b*) telegraph, telephone, and other transmission companies, lines or systems; and (*c*) street railways, telephone exchanges, gas, electric and water works, heating and refrigerating plants, terminals, ferries, toll bridges, warehouses, elevators, cold storage houses, and any creamery, slaughter-house, meat packing establishment, and any milk, coal, or ice dealer found upon complaint and investigation to possess substantial monopoly power.

The term "public utility" should be so defined as to embrace municipalities and every individual, partnership, firm, corporation, association, trustee or receiver owning or operating any of the foregoing plants, businesses, or industries, and also any corporation or association formed for the purpose of acquiring, or authorized to acquire, or which has acquired any utility franchise. This last provision, modeled upon the New York law, is intended to reach inchoate or inactive companies which acquire franchises and hold them until such time as they become valuable. Some of the businesses above enumerated are not usually classed as public utilities but it is well known that in many places they are, and tend more and more to become, virtual monopolies. The law should be broad enough to cover all monopolies and explicit enough to preclude evasion by a mere change of form.

The commission should be required to ascertain, as speedily as practicable, the fair value of all utility properties actually devoted to the public service and thereafter to keep itself informed of all new construction and of the value thereof. No particular theory of valuation should be prescribed in the statute, since none now commands universal assent, but no allowance should be permitted, in any valuation for rate-making or for municipal purchase, for any franchise, except the compensation actually paid to the public grantor. The valuations so found should be conclusive, as of the date when made, for the purpose of municipal purchase and also in any subsequent proceeding in any court of the state. This last provision would save the vast expense of taking expert testimony in litigation, and it would also serve the ends of justice much more nearly than does the ordinary court appraisal.

Uniform accounts, to be prescribed by the commission for each class of utilities, should be compulsory. Express provision should be made for depreciation accounts and for the maintenance by each utility of such depreciation fund as the commission shall deem adequate to replace the plant and equipment as the same may wear out or become obsolete. Both ordinary repairs and renewals are properly operating expenses which ought to be met out of earnings before dividends are declared or profits computed. Only thus can investors be protected without saddling the public with interest charges upon vanished capital. Further, by means of the depreciation accounts, together with the construction accounts above spoken of, continuing valuations will be automatically secured and a sound basis established for rate-making.

To make the accounting requirements effective, the commission should be empowered to audit the accounts of any utility and should be required to examine and audit the books of municipal plants. Municipally operated utilities would greatly profit by such supervision as would compel them to keep intelligible records. Private investors, also, would be benefited by trustworthy comparative reports of public utilities.

The commission should have full power, after hearing, to fix the exact rates for each class of service. It is not sufficient to prescribe simply maximum rates. In most cases when any change of rates is necessary, justice as between consumers requires revision of the entire schedule. To simplify the commission's work and to secure uniformity each utility should be required to publish and file schedules showing all rates in force. No change in the schedule should be permitted without thirty days' notice to the commission, nor any increase over the rates effective at a given date without the commission's assent. Unlawful discrimination should be defined with some particularity, and any departure from the published schedules or any greater, less, or different charge to one person than to another for a like and contemporaneous service should be expressly prohibited. As a further precaution the commission should be authorized to cancel discriminatory contracts, even those which antedate the passage of the act. Such a power may appear anomalous; but there is no good reason for the continuance of an admitted wrong, and what is more, discriminatory agreements are unlawful and hence *ab initio* void at common law.

The commission should have power to prescribe standards of products and services, standard units of measurement, standard measuring appliances, standard safety equipment, and rules for the protection of the health and safety of employees and of the public. It should be authorized, after hearing, to require improved service or facilities, additions to plant or equipment, and extensions to new territory when reasonably necessary to the public service. To make these provisions effective, the commission should be required, through competent agents and with reasonable frequency, to inspect railway tracks, bridges, and equipment, and other utility properties, to test the purity, pressure, heat value and illuminating power of gas, the voltage of electric currents, the initial efficiency of electric lamps, the purity of water, the strength of fire streams, and the adequacy of telephone, street railway, and other utility service, and to compel, upon the reports of its inspectors, and without formal hearings, full compliance with standards fixed by law or by the lawful orders of the commission. Utilities should be required to provide standard proving apparatus, to prove meters, test service, and keep station records according to the rules prescribed by the commission. No utility should be allowed to install any gas or water meter until tested, approved, and sealed by an official inspector, nor any electric meter of a type not approved by the commission.

No provisions of a public utilities act are more important or require closer attention than those respecting capitalization. Wording as well as substance needs to be watched with jealous care to guard against evasion. Effective control of capitalization must embrace at least the following features:

First. The issue of stocks, bonds, or any form of note or debenture running more than twelve months, should be permitted only for the acquisition of property, new construction, or other purpose properly chargeable to capital account—and then only with the authorization of the commission and only to the amount and for the purposes and upon the terms authorized by the commission, which should be further charged with the duty of seeing that such terms and conditions are fulfilled.

Second. No utility should be permitted to issue capital stock at less than par, fully paid in cash, or in property at a valuation fixed by the commission. The securities of a new or reorganized company should be limited to an amount not exceeding in the aggregate the structural value of its plant and equipment, the reasonable expenses of organization, and the cash actually in hand—all to be ascertained and certified by the commission.

Third. Payment for labor or services in stock or other securities and the capitalization of any franchise at more than the compensation actually paid to the public grantor thereof, or of "good will" at any amount, should be expressly prohibited. To permit the promoter or underwriter to receive a block of stock is to encourage speculative enterprises and open the door to overcapitalization. Legitimate services of organization should be compensated in the same way as the work of an engineer or building contractor. "Good will" obviously has no application to a monopoly, and a public grant should not be made the means of extraordinary profits.

Fourth. Stock or scrip dividends, shareholders' privileged subscriptions to stock or bonds, and every other form of "melon cutting" should be expressly forbidden. As a preventive, all stock and other securities should be offered at public sale. It should, however, be provided that a minimum or refusal price may be fixed by the issuing corporation, and that the securities may be offered in successive blocks or, with the commission's approval, be marketed through underwriters. Without such safeguards public sale might depress the price of securities below their real value.

Mergers, under proper safeguards, ought to be encouraged. The amalgamation of competing utilities avoids much senseless waste. There are marked economies also in the joint operation of a telegraph and a telephone system, of a street railway and a commercial power plant, or of a gas and an electric lighting establishment. It may even be advantageous to combine all the utilities of the same community. Such a consolidation would effect important savings in superintendence and office expenses, in the cost of reading meters and making collections, in the purchase of fuel and materials, and in the engineering and construction departments. Under such restrictions as will secure to the public a fair share in these economies, the consolidation of utilities in the same territory is an advantage to consumers as well as owners.

To protect the public, while permitting legitimate consolidations, three restrictions appear to be necessary:

First. No utility shall sell, assign, convey, lease, mortgage, create any lien against, or transfer in any manner whatsoever, its franchise, works, plant, or property of any description (except materials and supplies disposed of in the ordinary course of business), without first obtaining from the commission a certificate of approval, to be granted or refused within the discretion of the commission; and then only upon terms and conditions approved by the commission.

Second. No corporation, company, partnership, firm or association shall acquire more than ten per cent of the stock, bonds, or other securities of any utility, except with the commission's approval as above set forth.

Third. The securities issued in exchange for any utility plant or property, or for the stock or bonds thereof, shall not exceed the structural value of the property devoted to the public service, the "going value" of the business (in which term shall be included only the reasonable expenses of organization and the reasonable costs of building up the business) and the compensation actually paid to the public grantor for its franchise—all to be ascertained and certified by the commission.

In view of the uniform failure of attempts at competition,[1] of the enormous losses which have been incurred in such attempts, and of the increases of capitalization and deterioration of service that usually have followed upon the abandonment of these experiments, it can hardly be doubted that regulated monopoly is the wiser policy. None the less, the power to permit competition may well be retained as a threat or club to hold monopolists to the faithful performance of their public duties. These two objects are probably best secured by prohibiting the establishment of any utility in competition with one already in existence unless the commission, after notice to all parties concerned and a hearing, shall find and certify that public convenience and necessity require such additional utility.

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[1] "There are few things which the industrial history of advanced nations proves more conclusively than that competition in the field of public utilities has failed to insure reasonably adequate service at reasonable rates."—B. H. Meyer, in *American Political Science Review*, V, 386.

With respect to the granting of franchises, two restrictions appear necessary for the protection of investors as well as of the public:

First. No franchise granted by any municipality or other political subdivision of the state should be valid or operative until and unless the commission, after hearing, shall find that such franchise is necessary and proper for the public convenience and properly conserves the public interests; and the commission should be expressly empowered to impose such conditions as to construction, equipment maintenance, service, or operation as the public interests may require. Such a provision, coupled with the referendum requirement would go far to do away with corruption in the granting of franchises. What is equally important, "jokers" would have little chance of surviving the triple ordeal of the city council, the electorate, and the commission.

Second. The indeterminate permit law of Wisconsin has given general satisfaction, both to the public and to the utilities affected. Under it the companies are assured of their rights in the streets and of protection against competition so long as they render reasonably satisfactory service at reasonable rates. They have no need to dicker with the local authorities for renewals of expiring grants. They are relieved from all fear of being forced to sacrifice their property at the expiration of any franchise and from all necessity of amortizing their investment. The municipalities, for their part, are no longer bound by rigid contracts running for definite terms of years. If any utility fails to furnish adequate service another company may be chartered by the city, with the commission's consent, without regard to existing franchises. If any city wishes to operate its own utilities it need not wait, as now, for the termination of a grant.

Municipalities should have power to construct, acquire and operate street railways, gas, electric, and water works, ferries, bridges, markets, elevators, warehouses, cold storage houses, commercial heating and refrigerating plants, and possibly other urban utilities. This list is much longer than the present laws allow; but all the enterprises mentioned have been successfully managed by European cities, and experiments in municipal operation, under proper safeguards, ought to be encouraged.

Municipal plants should be subject to the commission's jurisdiction with respect to accounts, rates, and service to the same extent as privately owned utilities. A public undertaking, to be sure, has not the same motive as a private monopoly to exploit its patrons. But there is considerable danger that private consumers may be compelled to pay for service furnished gratis to the city or, on the contrary, that rates may be made so low as to not provide for interest, upkeep, and depreciation. Wisconsin's experience shows that municipal utilities are likely to discriminate as between different classes of private consumers; and even personal discrimination may be brought about by political influence or otherwise. Service, also, is sure to be improved by state inspection and the requirement of station records.

Every municipality should have power (1) to determine by franchise, contract, ordinance, or otherwise the terms and conditions upon which any utility may occupy its streets, alleys, and other public places; (2) to exercise continuing police control over poles, wires, conduits, tracks, and other structures in, under, over, or along such highways or public places, and over all cars or other vehicles operated thereon; and (3) to require additions to plant or equipment or extensions into new territory. To prevent injustice an appeal should lie to the commission which should be empowered to set aside any ordinance, contract, or franchise which it might find to be unreasonable, unlawful, or prejudicial to the public interest; but no utility should be permitted to occupy the highways of, or operate within, any municipality without first obtaining the consent of the city council and of a majority of the qualified electors voting thereon.

It is desirable to confine appeals from the commission to the courts within somewhat narrow limits, not alone to save litigation but to make the intended regulation effective. An administrative board constituted like the Railroad Commission of Wisconsin is far better fitted than any court in the land to pass upon the reasonableness of rates, the adequacy of service, or the necessity of additional stocks or bonds. The commission is more expert in such matters than any court can ever become; it has much ampler and more trustworthy sources of information; it is equally judicious; and it is unhampered by that technicality which has ever been the mother of the law's delays. There is no merit in the suggestion that the final determination of such questions by an administrative board would be an arbitrary exercise of power. Final decision must be vested somewhere, and may very properly be entrusted to the tribunal which is best fitted to exercise it.

Ideally, then, the commission's findings should be final as to facts, including even ultimate conclusions of fact, and should be reviewable only on the grounds that the commission has exceeded its authority, or that it has not proceeded in accordance with law. Reason and analogy support such a limitation of judicial review.

The courts in the United States are committed, however, to the doctrine of judicial control over rate-making. It is not possible, therefore, to make the decision of an administrative body conclusive as to the reasonableness of rates or of orders affecting property rights. The utmost that can be done is to hedge about judicial review upon these matters with such safeguards as will serve to make the public service commission something more than an advisory body. There is no doubt that a state may to the extent permitted by its constitution limit the jurisdiction of its own courts; and it appears to be settled that when a limited judicial review is permitted by the laws of the state parties will be required to exhaust their remedies there before applying to the federal courts.

B. INDUSTRIAL COMBINATIONS

84. FORMS OF COMBINATION[1]

I. AGREEMENTS ON PRICES AND PRODUCTION

Although the principle of combination seems to have become firmly established in the industrial life of the United States and the leading countries of Europe, the forms have varied materially. These forms have depended in part upon the business habits of the community, the condition of the business, and the commercial laws of the various states and countries. The strongest forms of combination appear to have been promoted by laws intended to prevent them.

In all countries the forms of combination which first appeared were merely agreements, among competing manufacturers or dealers, with reference to prices. When competition lowered prices beyond the remunerative point, it was a common practice, both in local markets and in the wider business field, for competitors to agree that prices should not be cut beyond a point named, which would give to all parties a fair return. Sometimes, even when no formal agreement is reached, the exigencies of trade will lead competitors to establish a customary price high enough to enable them to keep in profitable business.

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[1] From the *Report of the Industrial Commission*, XIX, 605–8; I, 21.

Arrangements among railroads for restricting competition sometimes amount merely to agreements to maintain rates, and sometimes go to the extent of a division of traffic or receipts under a pool. It is also well known that our great steel manufacturers generally for a number of years have had agreements regarding the prices on steel rails, steel billets, and other leading products of a kind manufactured by all.

Closely connected with the agreement as to prices is often found an agreement regarding the extent of the output. This is particularly true where the market is limited and where the number of producers is small, so that by an agreement for the limitation of production, prices can be readily regulated. Such an agreement has prevailed for many years among the French sugar refiners, and is generally known as the French sugar trust. From time to time, usually monthly, the half-dozen leading French sugar refiners, producing a large percentage of the total of refined sugar, meet, and agree upon the quantity which the market seems to demand for the succeeding month. Each refiner is allowed his fixed percentage and if he exceeds it he is fined. Although agreements of this sort do not regularly contain a clause fixing the price of the product, the adaptation of the supply to the probable demand determines substantially what the price shall be. Sometimes, instead of limiting the product, the marketing territory is divided among the producers, each being bound not to enter the territory of his former competitors.

In nearly all countries, as soon as under such agreements business begins to be unusually profitable, the temptation for each party to extend his sales, by shading the price or entering the territory of his rival, becomes so strong that some will secretly break the agreement. This often happened in the case of both the whisky and railroad pools in this country. Such violation of the contract led invariably to the failure of the pool and a method had to be devised to prevent these practices. For example, to prevent the breaking of agreements, a forfeit is fixed; and in order that infractions may be discovered, sometimes each party to the agreement is given access to the books of his rivals, but more frequently such examination is left to a small executive committee trusted by all. Frequently, to insure the payment of a fine imposed, each party to the agreement is required to deposit the amount of the forfeit, either in cash or in readily negotiable securities, in the hands of an executive committee or of third parties. If the laws of the country recognize such agreements as legal, this form of agreement upon prices and output is likely to become permanent. Such is the form which exists, generally, in Germany and Austria. The German courts hold such agreements valid.

II. SELLING BUREAUS

The failure of agreements as to prices and production, owing to disapproval by the courts, has led to other devices. The one most common in Europe, and at times found in the United States, has been that of the selling bureau. In France and Germany these bureaus are ordinarily organized with members from each of the establishments entering the arrangement. This bureau takes cognizance of market conditions, and estimates the amount of product required to supply the trade; it then allots to each establishment the output considered its share, takes all orders for goods, fixes prices, and manages the entire selling business. Sometimes the different establishments are allowed to do more or less independent selling under a rigid system of accounting, with penalties if the rules are broken.

The former Michigan Salt Association in the United States, the Comptoir métallurgique de Longwy in France, and the Westphalian Coal Syndicate in Germany are striking examples of this kind of agreement system. All worked successfully for many years, and the last two named are still in operation. The weakness of these forms of agreement was found to be in their doubtful legality in some countries. They are inefficient, because they do not permit of central management of the manufacturing plants.

III. THE TRUST

Feeling the necessity of more complete control over its separate manufacturing establishments than had been possible under the loose agreements of the preceding ten years, the Standard Oil Company in 1882 arranged with its associate companies to organize a "trust," with the form and powers previously mentioned.

In this form of organization the Standard Oil was followed by the whisky trust, the sugar trust, and others. Experience soon showed that the trusts were irresponsible bodies, hard to control by the courts. There were no laws providing for the organization of such institutions; the trustees in various instances did not keep proper records which they were ready to produce in court; and the new form of business organization at once met with popular and judicial disapproval. In 1890 the sugar trust was declared illegal in the State of New York, under the common law.

As a consequence, all trusts of this form were soon dissolved and the combinations reorganized in a different way. With the exception of the Standard Oil Company they became single corporations, and combinations since established have regularly taken this form.

IV. THE CORPORATION FORM

When it is proposed to consolidate different establishments under the corporation form, it has been customary to organize a single new corporation to purchase and own the various plants. These plants are sometimes paid for in cash; more frequently in the securities of the new corporation. When the plants to be combined have been owned by corporations, it has been usual to effect an exchange of the stock of the new corporation for the stock of the old companies at an agreed ratio. The separate corporations may then be dissolved and the plants remain in the ownership of the new corporation.

This was the plan followed by the whisky trust upon its reorganization into the Distilling and Cattle Feeding Company, and by the American Sugar Refining Company when it was reorganized.

If the separate plants have not been owned by corporations, a common plan of the later combinations is to first organize the owners into the corporate form. A new corporation is then organized, which instead of purchasing the properties buys the entire stock, or at least a majority interest in the separate companies. The separate corporations maintain their existence, and their dividends make up the fund from which the dividends of the new corporation are declared. In effect, this form of corporation is substantially the same as the old trust, but the corporation is organized regularly under the laws of some state, and is subject to whatever restrictions the laws of that state place upon it, instead of being an irresponsible body, as the trust was. This plan of organization has been followed by the Federal Steel Company, by the latest reorganization of the Distilling

Company of America, by the United States Steel Corporation, and others.

In the management of this form of combination the officers and directors of the central company legally appear only as a board of stockholders. They cannot, ex officio, direct the action of the officers of the constituent companies; they can merely give advice. But as they have the power of electing the officers, eventually their advice must be followed.

This form, in which the central corporation owns the stock instead of the properties of the separate companies, has a flexibility and convenience in organization and in retaining local brands, good-will, etc., not found in corporations owning the plants.

It will be noted that pools, agreements on prices, etc., leave the constituent companies each independent and with diverse interests, whereas the trust and the combination, under the two kinds of corporations mentioned, secure an identity of interests among the separate establishments; if one is weak it is for the interest of all that it be made strong or put out of existence. The control is much more complete.

V. THE FACTOR SYSTEM

Several of the industrial combinations have adopted the plan of selling their goods to the wholesalers at a certain fixed price and at the same time naming a price at which they were to furnish them to the retailers. After an interval of from thirty days to six months, provided the wholesaler would make affidavit that he had maintained the prices given him, and, sometimes, that he had sold only the goods of the combination, he would receive a rebate from the manufacturer. From this rebate came his only profits. It has been thought by many that this factor system was a means employed by the combination to hold its monopolistic control over the wholesaler.

This system is perhaps best known in connection with rebates on sugar, but for a time, while the Distilling and Cattle Feeding Company was in existence, a somewhat similar rebate system was employed in the sale of spirits. The larger distributers and rectifiers received a rebate of 2 cents a gallon, and the wholesalers, after an interval, provided they had sold only the goods of the company, received a rebate of usually 5 cents a gallon, though the amount of the rebate varied somewhat at different times.

In the case of the whisky combination the company failed to keep on hand a sufficient amount of cash to pay these rebates promptly, and this delay in payment was one of the causes which led to throwing this company into the hands of a receiver.

A similar system is found in the selling of soap, baking powders, etc., but the general principles vary in no essential particulars from the ones just given.

85. THE STEEL RAIL POOL OF 1887[1]

MEMORANDUM OF AGREEMENT, ENTERED INTO AUGUST 2, 1887, BY AND BETWEEN THE NORTH CHICAGO ROLLING MILL COMPANY, THE CAMBRIA IRON COMPANY, THE PENNSYLVANIA STEEL COMPANY, THE UNION STEEL COMPANY, THE LACKAWANNA IRON & COAL COMPANY, THE JOLIET STEEL COMPANY, THE WESTERN STEEL COMPANY, THE CLEVELAND ROLLING MILL COMPANY, CARNEGIE BROTHERS & CO., LIMITED; CARNEGIE, PHIPPS & CO., LIMITED; THE BETHLEHEM IRON COMPANY, THE SCRANTON STEEL COMPANY, THE TROY STEEL & IRON COMPANY, THE WORCESTER STEEL WORKS, AND THE SPRINGFIELD IRON COMPANY.

We, the before-named companies and corporations, manufacturers of steel rails, hereby mutually agree one with the other, that we will restrict our sales and the product of steel rails of 50 pounds to the yard and upward, applying to orders taken by us and to be delivered by us from our respective works during the year 1888, as hereinafter allotted and limited; and we respectively bind ourselves not to sell in excess of our current allotments, without first obtaining the consent of the Board of Control thereto—that is to say:

It is agreed, there shall now be made an allotment of 800,000 tons of rails, which shall be divided and apportioned to and among the several parties hereto to be sold by them during the year 1888, upon the following basis of percentages, to wit: North Chicago Rolling Mill Company, $12\frac{1}{2}$ per cent; Pennsylvania Steel Company, $9\frac{8}{10}$ per cent; Bethlehem Iron Company, 9 per cent; Carnegie Bros. & Co., Limited, and Carnegie, Phipps & Co., Limited (jointly), $13\frac{5}{10}$ per cent; Joliet Steel Company, 8 per cent; Lackawanna Iron & Coal Company, 8 per cent; Cambria Iron Company, 8 per cent; Scranton Steel Company, 8 per cent; the Union Steel Company, 8 per cent; Cleveland

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[1] From the *Report of the Commissioner of Corporations on the Steel Industry*, Part I (1911), pp. 69–71.

[For an account of another form of monopolistic agreement see Selection 122, on Coffee Valorization.—EDITORS.]

Rolling Mill Company, $4\frac{8}{10}$ per cent; Troy Steel & Iron Company, $4\frac{6}{10}$ per cent; Western Steel Company, $4\frac{5}{10}$ per cent; Worcester Steel Works, $1\frac{4}{10}$ per cent.

And in addition to the said allotment of 800,000 tons of rails above allotted, an additional allotment of 250,000 tons is hereby made and allotted to the Board of Control, to be reallotted and reapportioned by it, as and to whom it may deem equitable, in the adjustment of any differences that may arise. It being also further agreed that all subsequent allotments of rails hereafter made, to be sold under this agreement during the year 1888, shall also be divided and apportioned to the several parties hereto in the same ratio of percentages as said apportionment of 800,000 tons is herein divided and apportioned.

It is further agreed, that the Board of Control shall, from time to time, make such further allotments as shall be necessary to at all times keep the unsold allotments at least 200,000 tons in excess of the total current sales, as shown by the monthly reports of sales. This is to be in addition to the then unappropriated part of the 250,000 tons hereinbefore allotted to the Board of Control to adjust differences.

It is further agreed, on the first day of April, July, and October, the Board of Control are authorized and directed to cancel such part of the unmade allotments of the respective parties hereto as they, the said Board of Control shall determine such party unable to make in due time, and all allotments so cancelled the Board of Control shall have the right to reallot to any of the other parties hereto; it being understood that all such cancellations shall apply only to allotments standing to the credit of the respective parties hereto on the dates above named, but no reallotment as aforesaid shall be made by the Board of Control to any of the parties hereto for the purpose of enabling them, or any of them, to make and sell rails from foreign made blooms.

It is further agreed, that all transfers of parts of allotments from one party to another shall be made by the Board of Control.

It is further agreed, that there shall be a Board of Control, consisting of three members, namely, Orrin W. Potter, Luther S. Bent, and W. W. Thurston, who shall have power to employ a paid secretary and treasurer.

It is further agreed, that the Board of Control, upon the written consent of 75 per cent of the percentages as hereinbefore named, shall increase the allotments for the year 1888, and such increase shall be allotted to the parties hereto as hereinbefore provided.

It is further agreed, that each party whose name is hereunto annexed, shall and will make monthly returns to the Board of Control of all contracts for delivery of rails of 50 pounds to the yard and upward during the year 1888, and also of all shipments of such rails made by them during said year; a copy of such return shall be furnished to each party hereto.

It is further agreed, that all the parties hereto shall and will, on or before January 15, 1888, make a written return to the Board of Control of all rails of 50 pounds to the yard and upward (designating the weight) which they respectively had on hand January 1, 1888, stating whether the same are sold, and if sold, on what order they apply.

It is further agreed, that the Board of Control shall have the right whenever they deem it expedient to convene a meeting of the parties hereto, and they shall give at least ten day's previous notice of all meetings, and any business transacted at such meetings, and receiving 75 per cent of the votes present thereat, either in person or by proxy, shall be binding on all the parties hereto, except as to a change in percentages as aforesaid.

The Board of Control shall be required to call a meeting of the parties hereto when requested so to do in writing, signed by any three of the contracting parties, but such request and such notice shall state the object for which such meeting is called.

It shall be the duty of the Board of Control to have a proper record kept of all the returns made to it, with power from time to time to change the form of return as they may deem expedient.

The Board of Control shall have authority to levy an assessment, pro rata to the allotted tonnage, to defray the actual expenses made necessary to carry out this agreement.

It is further agreed, that we will, respectively, immediately make return to the Board of Control of all rails of 50 pounds to the yard and upward which we are now under contract to deliver during the year 1888, said return to state to whom such rails are sold and when they are to be delivered.

[Signatures]

86. THE CONTINENTAL WALL PAPER COMPANY[1]

The contract and agreement is one between 98 per cent of all the wall-paper makers in the United States, who co-operate through a corporation organized by them for the single purpose of selling their gross product. That there shall be no competition between the combined companies is insured by the agreement that each manufacturer shall sell his entire product at an agreed price to the plaintiff corporation, which is to nominally make all sales, either directly or indirectly, at a uniform price, subject to an agreed scale of discounts, varying only according to an arbitrary classification of buyers. The difference between the price at which the so-called "vendors" sell to the plaintiff company and the price exacted from those who buy from it will be profit, and the profits will constitute the dividends to be distributed to plaintiff's shareholders, and plaintiff's shareholders are exclusively composed of the combining companies, called "vendors"; its comparatively insignificant amount of stock being placed with these vendors in proportion to the product of the year before the combine took effect. To prevent the enlargement of the product of any one of the vendors, it is provided, in effect, that there shall be no enlargement of plant, though new machinery may be used to replace old or that destroyed.

To insure a monopoly of the business to themselves, and keep strangers out of it, it is alleged, and not denied, that the only two manufacturers of wall-paper machinery in the United States became parties to the combination by agreeing to sell no machinery to strangers, and to confine their sales to the combine. To add to the protective force of the tariff duties tending to keep out foreign products, it is also averred that an agreement was made with Canadian paper makers to protect each other against any cutting of prices. To insure against any kicking out of the agreement or violations in any way, each member is required to indorse its shares in the Continental Wall Paper Company to that corporation, which is to hold and apply the same as liquidated damages in case of any breach. But that there should be no inducement to fly the contract, the scheme contemplated that every wholesale buyer should engage himself to buy his entire supply from the combine; and to secure the engagement of each such jobber or wholesaler to the scheme, no paper was to be sold to such as did not sign. This made the contract practically unbreakable, for if a factory should weary of the monopoly, it could find no jobbers or wholesalers free to buy its product, and it would be driven to rely upon such orders as it could get from retailers or consumers. That this union of former competitors—a union embracing substantially all of the wall-paper mills in the land (for the 2 per cent left out may be ignored as an active competition), should result in an unreasonable enhancement of prices is precisely what we might anticipate. Wall paper is a product of universal necessity, and the consumers are found in every household. Every principle of economic law instructs us that under such conditions there will be an enhancement of price, limited only by the unknown boundary of human greed and corporate avarice. It is therefore not to be doubted that the averment confessed by the pleading, that prices have been advanced 50 per cent, is substantially true. The conspiring mills were situated in many states. The consumers embraced the whole citizenship of the United States. The jobbers and wholesalers who were to be coerced into contracts to buy their entire demands from the Continental Wall Paper Company, or be driven out of business, were in every state.

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[1] From the *Continental Wall Paper Co.* (plaintiff) v. *Lewis Voight & Sons Co.*, 148 Fed. Rep. 946–48.

Before the combination, each of the combining companies was engaged in both state and interstate commerce. The freedom of each, with respect to prices and terms, was restrained by the agreement and interstate commerce directly affected thereby, as well as by the enhancement of prices which resulted. A more complete monopoly in an article of universal use has probably never been brought about. It may be that the wit of man may yet devise a more complete scheme to accomplish the stifling of competition; but none of the shifts resorted to for suppressing freedom of commerce and securing undue prices, shown by the reported cases, is half so complete in its details. None of the schemes with which this may be compared is more certain in its results, more widespread in its operation, and more evil in its purposes.

87. THE AMERICAN TOBACCO COMPANY[1]

The Tobacco Combination had its origin in 1890 in the formation of the American Tobacco Company, capitalized at $25,000,000, which concern combined the five leading cigarette manufacturers of the country and thus obtained control over about 90 per cent of the country's cigarette output. In 1891 it extended its business along other lines by acquiring two important smoking-tobacco concerns and by entering the plug and cheroot branches of the business. Its proportion of the total output in these, however, was small for several years. In 1895 several "all-tobacco-cigarette" concerns came under its control, which practically established its supremacy in this branch. From 1894 to 1897 the company, taking aggressive steps to control the plug business of the country, carried on its so-called "plug-tobacco war." This resulted late in 1898 in the organization, substantially under its control, of the Continental Tobacco Company with $62,290,700 of capital stock, almost equally divided between preferred and common. The Continental took over the plug businesses of a number of leading independent interests and also that of the American itself. Early in 1899, moreover, the Continental acquired the Liggett & Myers Tobacco Company, the largest and most important plug-tobacco concern of the country, increasing its own outstanding capital stock at this time to $97,690,700. The Continental, by these and subsequent acquisitions, secured substantial control of the plug-tobacco business of the country.

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[1] Adapted from the *Report of the Commissioner of Corporations on the Tobacco Industry*, Part I (1909), pp. 1–13

Meantime the American Tobacco Company made numerous acquisitions of smoking-tobacco concerns, and by the end of 1899 it had almost as large a degree of control over this branch as the Continental Tobacco Company had acquired over the plug branch. The outstanding capitalization of the American was raised in this year from $35,000,000 to $68,500,000.

In 1901 the power of the Combination was further greatly increased by the organization of the Consolidated Tobacco Company, a holding concern with a capitalization of $30,000,000, later increased to $40,000,000, all paid in in cash. The Consolidated was the means of concentrating control within the Combination. It acquired practically all of the common stock of the American and Continental companies, issuing in exchange therefor $157,378,200 of 4 per cent bonds. The organization of this company was planned by leading interests in the two older companies. The stockholders were induced to exchange their common stock for bonds bearing a fixed rate of interest. As a result the greatly increased profits in the business from the reduction in the internal-revenue tax soon afterward, which increase stockholders generally could not foresee, accrued in large part to the advantage of these inside interests as the chief holders of the Consolidated's stock.

During the years 1900, 1901, and 1902 the Combination rapidly extended its operations. In the first year the American Snuff Company was formed with a capitalization of $23,001,700. It combined the businesses of the Atlantic Snuff Company and of the G. W. Helme Company with the snuff business of the American, Continental, and Lorillard companies, these three groups together representing at that time about 60 per cent of the snuff business of the country. In 1901 the American Cigar Company was formed with a capital stock of $10,000,000 (authorized; $9,965,000 issued), subsequently increased to $20,000,000, all outstanding. This company acquired several important cigar concerns and combined them with the cigar business of the American Tobacco Company. Through the Havana Tobacco Company the Combination in 1902 acquired control of the larger part of the Cuban cigar and cigarette business. A campaign for the control of the tobacco business of Great Britain by the Combination, begun in 1901, but only partially successful, led in 1902 to the formation of the British-American Tobacco Company, which concern now handles the export and foreign business of the Combination. Two-thirds of the total outstanding capitalization of this concern, £5,820,000 ($28,323,000), is owned by the American Combination and the remaining third by a British combination, the Imperial Tobacco Company, formed as a result of the American invasion.

In 1904 the American, Continental, and Consolidated companies were merged into the present American Tobacco Company, the central concern of the Combination. For the preferred stock of the old American and Continental companies, outstanding and in the hands of the public, it issued bonds on such a basis as to make the return to the holders the same as before. For the bonds of the Consolidated Tobacco Company, aggregating over $157,000,000, it issued preferred stock and 4 per cent bonds, and for the stock of the Consolidated Tobacco Company it exchanged common stock at par. The amounts of securities outstanding at the end of 1904 were $40,242,400 common stock, $78,689,100 preferred stock, and $136,360,600 bonds, a total of $255,292,100; this was decreased to $226,764,600 at the close of 1908 through redemption of a portion of the bonds. Control of the American Tobacco Company is vested in the common stock, which, as shown above, forms only about one-sixth of the entire capitalization, but which in recent years (1908–1910) has received nearly one-half the entire earnings as dividends.

The reorganized American Tobacco Company is both a manufacturing and a holding company. It produces directly the larger part of the Combination's plug and smoking tobacco and domestic cigarettes. It controls a large number of subsidiary concerns, however, engaged in the same branches of the business, as well as the American Snuff Company and the American Cigar Company, which conduct, respectively, the snuff and cigar branches of the Combination's business.

As a result of the consolidations and acquisitions that have taken place, the American Tobacco Company, either directly or through its subsidiaries, controlled at the close of 1908 roughly from 75 to 85 per cent of practically every branch of the domestic business in which it is interested, with the exception of cigars, in which its share was only about 13 per cent. In the case of snuff its proportion of the total was 95.7 per cent.

The history of the Tobacco Combination thus presented shows plainly that the leading purpose of the men who have controlled it has been to dominate the tobacco industry. They started out by practically monopolizing the cigarette business. With the great profits derived from that source they carried on a strenuous competitive fight in the plug industry, which ultimately forced the leading competing manufacturers into combination with themselves. This secured for the Combination a dominant position in the manufacture, not only of plug, but of smoking tobacco. Soon after, the combination in the snuff industry was brought about, and subsequently a combination in the cigar industry. The latter, however, controls only a limited proportion of the business.

The successive combinations which these men have established, except that in the cigar business, at the outset took in the leading manufacturers and secured a very large degree of control over the business. That degree of control, however, has been further extended by the acquisition, either by direct purchase or by securing a controlling stock interest, of a very large number of other competing concerns. The total number of formerly separate concerns and combinations which have passed under the control of the Tobacco Combination is in the neighborhood of 250. This number includes the concerns which originally entered the several combinations, but such original acquisitions, though in general they were the largest concerns, were much less numerous than the concerns acquired subsequent to the formation of the combinations. It appears to have been the policy in fact to buy up, from time to time, most competitors whose business had become successful.

The effect of these later acquisitions is best seen in the increase in the proportion of the business controlled. In 1900, shortly after the formation of the Continental Tobacco Company, the Tobacco Combination controlled about 60 per cent of the production of chewing and smoking tobacco in the United States. In 1906 it controlled 81.8 per cent of the chewing tobacco and 70.6 per cent of the smoking tobacco. Its proportion of the manufacture of snuff increased from 80.2 per cent in 1901, the first full year of the operation of the American Snuff Company, to 96 per cent in 1906.

A significant feature of many of the acquisitions of the Combination, particularly during the period from 1902 to 1904, is the fact that they were made secretly and that the American Tobacco Company interests, as long as possible, concealed their control, continuing to operate the concerns as though independent and often using them as a special instrument for attacking the business of genuine competitors.

Aside from concerns engaged in tobacco manufacture, the American Tobacco Company, and to a less extent the other affiliated combinations, have, particularly since 1899, acquired control of many concerns engaged in enterprises contributory to tobacco manufacture. Concerns thus brought under the control of the Combination include many engaged in the wholesale or retail distribution of tobacco products, several producing leaf tobacco in Cuba and Porto Rico, a number which make packages and materials, other than tobacco, used in tobacco manufacture, several which exploit patents for machinery or manufacture machinery for the use of tobacco factories, and a few which handle by-products, make smokers' supplies, etc. The most important of these contributory enterprises of which the Combination has secured control is the manufacture of licorice which is a very important material in tobacco manufacture. Through the MacAndrews & Forbes Company, which has bought up several competing concerns, the American Tobacco Company interests have substantially a complete monopoly of the licorice business.[1]

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[1] [A suit to dissolve the American Tobacco Company was started by the United States government and in 1911 the Supreme Court decided in the government's favor. It declared that the company was unreasonably restraining interstate commerce, contrary to the Anti-Trust Law, and decreed its dissolution. Since then the trust has been split up into parts and each of the various branches of the business distributed to two or more separate companies which are enjoined from combining to restrain interstate commerce.—EDITORS.]

88. THE UNITED STATES STEEL CORPORATION[1]

The basic industry of steel making affects the whole people of the United States. Its organization is a matter of public concern (not merely of private interest), and a great national resource—iron ore—lies at the foundation of the business. The Steel Corporation was the culmination and the result of a remarkable and even dramatic period in the steel industry. Until about 1898 the bulk of the business was distributed among a very considerable number of concerns. There was sharp competition, modified by frequent pools and price agreements of greater or less duration and effectiveness.

In 1898 began an era of great consolidations, with capitalizations ranging from $30,000,000 to $100,000,000, usually mergers of many smaller companies. In most of these, as in the earlier price agreements, the ruling motive was the removal of competition.

They did not, however, finally eliminate competition. On the contrary, a broad movement at once became apparent which threatened competition on a larger scale and probably more severe than any in steel history. This was the process known as "integration."

The situation in 1899–1900 was as follows: There were three great companies—the Carnegie company, the Federal Steel, and the National Steel—dominating the production of crude and semifinished steel. This may be called the "primary" group. Six other large concerns—the American Steel and Wire, American Tin Plate, American Steel Hoop, American Sheet Steel, National Tube, and American Bridge—severally controlled these lighter finished products. These formed the "secondary" group.

But, large as these concerns were, no one of them was entirely self-sufficient. The "secondary" group was dependent on the "primary" for its crude steel; the "primary" largely dependent on the "secondary" for a market for its products. Few were completely "integrated"; that is, few carried through under one control, with the accompanying advantages, the entire industrial process from the ore to the finished product, linking up ore and coal mines, transportation, blast furnaces, steel works, rolling mills, and finished manufacture.

Immediately, however, came the next step. These great concerns almost simultaneously began the final linking up of the chain of production. Once begun by one concern, others followed in self-defense. The "secondary" companies began to reach back, acquiring ore reserves and crude steel plants. For example, in 1900 the Steel and Wire Company, whose supply of materials had previously been purchased mainly from the Carnegie or the Federal company, planned to make its own steel; likewise the National Tube Company. The "primary" concerns, finding these their chief customers turning into rivals, retaliated by reaching forward to the manufacture of finished products.

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[1] Adapted from the *Report of the Commissioner of Corporations on the Steel Industry*, Part I (1911), pp. xvii–xxiv.

Paramount in importance was the ore. The recognition of that importance came strangely late, but, once recognized, it became an axiom that no large concern could stay in the business unless fortified by its own ore reserves. By 1900 the bulk of the lake ores was in the hands of less than a dozen companies, with a similar concentration in coking coal.

Such efforts on the part of these great concerns, in striving each to "integrate," to make itself wholly independent, threatened to result in a great and sudden increase and duplication of the steel producing and finishing capacity of the country, and to involve them also in an invasion of each other's business.

Thus there was suddenly revealed to the industry what the trade press at the time called "the impending struggle of the giants," a contest between great concerns who under such circumstances might be forced to work out, in rigorous competition, the survival of the fittest.

Such were the conditions in the steel industry in 1900. The spark that lighted the train was the threat of the Carnegie company to erect a great tube plant near Cleveland, thus invading the field of finished manufacture.

Steel men and the various associated financial interests regarded this situation with much alarm. In such competition they saw a great danger to their businesses, especially to the profitable quasi-monopolies in certain branches of the trade. In averting it they also saw a great opportunity. The extraordinary era of industrial expansion was still on; the public were still eagerly absorbing large issues of securities. By merging these conflicting interests into a great corporation, the threatened "steel war" would be averted, and great profits realized from the flotation of securities.

With amazing swiftness, in a few weeks, the United States Steel Corporation was thus organized, and began business on April 1, 1901. Its total capitalization was a little over $1,402,000,000 (including bonds). It is strictly a "holding" company—that is, it does not mine, manufacture, transport, or sell; it simply owns the stock (as a rule all the stock) of its constituent concerns. Thus competition between these concerns was eliminated, while enormous profits were made from the flotation of securities, with, also, an unparalleled stock commission to the underwriting syndicate, which netted a clear profit of about $62,500,000 in cash.

At its formation the United States Steel Corporation (referred to herein as the "Corporation") controlled about two-thirds of the country's production of crude steel, and from one-half to four-fifths of the principal rolled steel products. It comprised ore, coal, limestone, natural gas, railway and steamship companies, blast furnaces, steel works, rolling mills, finishing plants, and various other properties. It was thus a thoroughly integrated concern, from ore to finished products.

There remained outside the merger a number of great companies of the primary sort, such as Jones & Laughlin, the Pennsylvania, Cambria, Lackawanna, Republic, and Colorado Fuel and Iron companies, and numerous concerns of the secondary type. While overshadowed by the Steel Corporation, these included strong, efficient, and growing businesses, furnishing a basis for vigorous competition.

The Steel Corporation is the greatest industrial concern in the United States, with the largest properties, and of international importance. It is the most conspicuous example of the modern corporate organization of great businesses. As such, the relation of its investment to its capitalization and to its earning power are matters of public concern.

The corporation was organized with (in round numbers) 510 millions of preferred stock; 508 millions of common stock; 303 millions of corporation bonds, and about 81 millions of underlying and miscellaneous obligations; a total of over 1,402 million dollars.

Speaking broadly, such capitalization amounted to the claim, the representation, that there was a value in this concern which would justify a fair business return on this capitalization. The Bureau finds, on the contrary, that in 1901 the fair market value of its tangible property was about 700 million dollars, slightly less than one-half its capitalization. The other half, the excess of about 700 million dollars, is thus separated and stands out, embodying the essential public questions raised by the Bureau's analysis of its investment. In so far as that excess represented value in 1901, it was value due either to increased earning power from elimination of competition; concentrated ownership of the basic natural resources, iron ore, and coal; or, in some degree, integration efficiency.

When such values are capitalized into dividend or interest bearing securities, they involve important public problems. They are merely another name for price policy, and the whole public is ultimately concerned in steel prices.

Increases in property.—Since its formation, the corporation, from surplus earnings (allowing for depreciation and changes in securities), has made good much of the original excess of its capitalization over tangible property. That excess in 1901 was about 700 million dollars, or 100 per cent, and in 1910 only about 280 million dollars, or 24 per cent. The total tangible value in 1910 was 1,187 million dollars. As in 1901, there is omitted here all the merger values heretofore referred to, and all appreciation of natural resources above the actual cost thereof to the corporation.

Profits.—The rate of profit has been calculated, not on the corporation's capital stock, but on the total investment as computed by the Bureau. Operating, administrative, and general expenses, as well as taxes, have been deducted from earnings; also true depreciation, a matter of some intricacy. The corporation's allowance for depreciation, including mineral exhaustion and obsolescence, has exceeded a necessary allowance. The Bureau has carefully determined from the records of the corporation the proper depreciation, and has restored the excess to profits.

Thus arrived at, the average rate of profit on actual investment from April 1, 1901, to December 31, 1910, was 12 per cent. It was highest in 1902, 15.9 per cent, and lowest in 1904, 7.6 per cent. The yearly rates do not indicate any pronounced tendency, but have on the whole slightly decreased.

It must be remembered, however, that 12 per cent profit for one small concern out of many is one thing. Other concerns may make much less. It is a very different thing when, as in this case, one-half of the whole industry has been maintained on the level of a 12 per cent profit.

It must be made entirely clear that this 12 per cent is the rate of profit on the whole investment. Were that part of the investment deducted which may be said to be borrowed money, chargeable only with a low fixed rate of return, the rate on the remainder, on that part which may be considered as put in by the stockholders, would be considerably higher.

Position in the industry.—While in production the Steel Corporation from the beginning has overshadowed its principal rivals, and even exceeded all of its competitors combined, its proportion of the total has materially diminished in the ten years of its operation.

In pig-iron production, the corporation has just about maintained its original position; in 1901, 43.2 per cent; in 1910, 43.4 per cent. But in steel, both crude and finished, it has lost ground; in 1901, 66 per cent of the steel ingots and castings; in 1910, only 54 per cent, notwithstanding great additions to its capacity. Rolled steel products generally show an almost steady loss, especially structural shapes and tin plate. Even in rails there has been no gain.

In short, speaking broadly, as against 60 per cent of all crude and finished steel production in 1901, the corporation now has not much over 50 per cent, indicating conclusively the continuous presence of strong and increasing independent production. The competition of these independents with the Steel Corporation so far as prices are concerned has been modified by the policy of "co-operation." This will be discussed in a later part of the report.

In efficiency, location of plant, and equipment—in capacity rather than actual production—the corporation is materially stronger than the foregoing figures indicate, and in case of continued trade depression this strength would probably show itself in increased control. In ownership of railroads for handling its materials it stands in a class by itself. It has a strong but not exceptional position in water transportation. Its control of the best qualities of coking coal is very strong though modified of late by new processes which make other coal more or less available for coking purposes.

Its position in ore reserves, on the other hand, is much stronger than in any other factor in the business. It is almost impossible, and would be unwise, to attempt any quantitative statement of its proportion of the total ore of the country; but of the lake ores, on which the present steel industry is based, it has about 75 per cent, and this advantage is materially enhanced by its extensive control of the rail transportation of the ore from the mines to the lakes. The so-called Hill lease made by the corporation in 1907, with an unprecedentedly high rate of royalty and other onerous conditions, is a striking instance of the policy of the corporation to maintain a high degree of control of ore. This lease covered enormous ore holdings.

There is much significance, also, in the prevailing custom of leasing ore mines under royalty instead of purchasing outright. This system as applied in the lake ore region, without any effective restrictions as to size of holdings, plainly facilitates concentration of ore property, as it greatly reduces the investment required to control large bodies of ore. It has unquestionably had a large influence in producing the high concentration of control now existing in lake ores, as well as elsewhere.

89. THE STEEL CORPORATION UNDERWRITING AGREEMENT[1]

EXHIBIT I

An agreement, made this first day of March, nineteen hundred and one, by and between United States Steel Corporation, a corporation existing under the laws of the State of New Jersey (hereinafter called the "Steel Company"), party of the first part, and J. P. Morgan & Co., of the city of New York, acting in behalf of a Syndicate, party of the second part:

Whereas, the Steel Company has been organized with a capital of $3,000, of which one-half is 7 per cent cumulative preferred stock and one-half is common stock, as shown by the certificate of incorporation of the Steel Company, recorded in Hudson County, New Jersey, on the 25th day of February, 1901, which capital stock is to be increased as hereinafter provided; and

Whereas, as hereinafter stated, the board of directors of the Steel Company deem it necessary for its business now to acquire the stocks and bonds of certain other corporations and also to obtain for its corporate purposes a certain sum in cash; and

Whereas, after careful investigation and appraisement, the board of directors of the Steel Company has ascertained, adjudged and determined that the value of such bonds and stocks now so to be acquired and hereinafter specified, exclusive of such cash sum (which cash sum is to be received and treated by the Steel Company as surplus), is equal at least to the par value of the stock of the Steel Company and of the bonds of the Steel Company to be issued therefor; and

Whereas, the board of directors of the Steel Company consider that such bonds, stocks, and cash may best be obtained by purchase, on the terms hereinafter stated, from the Syndicate represented by

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[1] From the *Report of the Commissioner of Corporations on the Steel Industry*, Part I (1911), pp. 383–86.

[For a discussion of the profits of this underwriting operation see Selection 235.—EDITORS.]

Messrs. J. P. Morgan & Co., party of the second part hereto, and managers of the said Syndicate; and

Whereas, each of the corporations, the capital stock of which it is proposed now to acquire hereunder, has been organized and now is existing under the laws of the State of New Jersey, and has outstanding capital stock divided into shares each of the par value of $100 (excepting the Carnegie Company, of which the capital stock is divided into shares of the par value of $1,000), and divided, also, into classes as next hereinafter stated, the said corporations, and the total outstanding capital stock and the classes thereof, being as follows, to wit:

Name of Corporation	Total Outstanding Capital Stock	
	Preferred	Common
American Sheet Steel Company	$24,500,000	$24,500,000
American Steel Hoop Company	14,000,000	19,000,000
American Steel and Wire Company	40,000,000	50,000,000
American Tin Plate Company	18,325,000	28,000,000
Carnegie Company	....	160,000,000
Federal Steel Company	53,260,900	46,484,300
National Steel Company	27,000,000	32,000,000
National Tube Company	40,000,000	40,000,000

And whereas, the Carnegie Company has issued, and there are now outstanding, its 5 per cent bonds for the aggregate principal sum of $160,000,000; and

Whereas, the Syndicate has arranged for the acquisition of substantially all of the bonds and the stock of the Carnegie Company; and

Whereas, in reliance upon this contract the Syndicate is endeavoring to effect the acquisition, and the delivery of all of the bonds of the Carnegie Company, and all of the outstanding shares of the capital stock of all of said corporations, upon the terms herein provided.

Now, therefore, in consideration of the premises and of other good and valuable considerations, and of the efforts and expenses which both parties recognize will have to be made and incurred by the Syndicate in their endeavor to consummate such sale:

First. The Steel Company agrees with J. P. Morgan & Co., acting in behalf of the Syndicate, as follows:

(1) If, on or before May 31, 1901, J. P. Morgan & Co., in behalf of the Syndicate shall

(*a*) Sell and deliver, or cause to be sold and delivered, to the Steel Company, at least fifty-one per cent of such outstanding shares of the capital stock of each of the corporations above named, or of such of said corporations as finally shall be embraced within the operation of this agreement with the approval of the Steel Company, which fifty-one per cent of the total outstanding capital stock of each of such corporations shall include not less than fifty-one per cent of the total outstanding preferred stock, if any, of such company; and also all of the $160,000,000 of bonds of the Carnegie Company now outstanding, or such lesser amount thereof as shall be tendered by J. P. Morgan & Co.; and

(*b*) Shall pay, or shall cause to be paid, to the Steel Company twenty-five million dollars in cash:

(2) The Steel Company will purchase such shares and bonds, and, in payment and consideration for such stock and bonds and for such cash, will issue to such persons as J. P. Morgan & Co., in behalf of the Syndicate, shall indicate, shares of its preferred stock and shares of its common stock (all of which shall be fully paid and non-assessable), and also its five per cent gold bonds (which bonds shall be of such form and tenor, and shall be secured, as J. P. Morgan & Co. may determine), as follows:

(*a*) In the event that the Steel Company shall acquire all the shares of the capital stock of all of such other corporations and all such bonds of the Carnegie Company, the Steel Company will issue for all such stock, and such bonds, and such sum in cash, four million two hundred and forty-nine thousand nine hundred and eighty-five shares of its preferred stock, and four million two hundred and forty-nine thousand nine hundred and eighty-five shares of its common stock, and also three hundred and four million dollars of its said five per cent gold bonds.

(*b*) In the event that the Steel Company shall not acquire all the shares of the capital stock of all of such other corporations and all such bonds of the Carnegie Company, the Steel Company will issue for the shares of stock and the bonds which shall be acquired, and said sum in cash, four million two hundred and forty-nine thousand nine hundred and eighty-five (4,249,985) shares of its preferred stock, and four million two hundred and forty-nine thousand nine hundred and eighty-five (4,249,985) shares of its common stock and three hundred and four million dollars ($304,000,000) of its 5 per cent gold bonds, less abatement and deduction therefrom to be made as follows

For each $100 par value of stock of such other companies mentioned in the following table, which shall not be acquired by the Steel Company, the amount of the preferred stock and common stock or either, set opposite to such class of stock in said table shall be deducted and abated.

Name of Company and Class of Stock	Amount of Stock to be Deducted in Par Value	
	Preferred Stock	Common Stock
Carnegie Company	$150.00	$150.00
Federal Steel Co.:		
Preferred stock	110.00	......
Common stock	4.00	107.50
American Steel and Wire Co. of N.J.:		
Preferred stock	117.50	....
Common stock	......	102.50
National Tube Co.:		
Preferred stock	125.00	....
Common stock	8.80	125.00
National Steel Co.:		
Preferred stock	125.00	......
Common stock	......	125.00
American Tin Plate Co.:		
Preferred stock	125.00	......
Common stock	20.00	125.00
American Steel Hoop Co.:		
Preferred stock	100.00	......
Common stock	......	100.00
American Sheet Steel Co.:		
Preferred stock	100.00	......
Common stock	......	100.00

For each $1,000 par value of such bonds of the Carnegie Company that shall not be acquired by the Steel Company $1,000 par value of such bonds of the Steel Company shall be abated and deducted.

Second. The Steel Company further agrees that in the event of the acquisition by it pursuant to this agreement of less than the total issue of said bonds of the Carnegie Company or less than the total outstanding capital stock of each of said corporations, the Steel Company from time to time will purchase from such persons as shall be indicated by J. P. Morgan & Co., any and all additional outstanding bonds of the Carnegie Company or shares of the capital stock of any of said corporations that shall be tendered to the Steel Company prior to May 1, 1902; and in payment therefor will issue and deliver its bonds and fully paid-up shares of its preferred stock and fully paid-up shares of its common stock, at the rates at which deduction and abatement shall have been made under Article First hereof in respect of the additional bonds and shares of stock so purchased.

Third. The Steel Company shall credit and allow to J. P. Morgan & Co. on account of the cash sum payable under Article First hereof, or shall pay to J. P. Morgan & Co. a sum equal to the aggregate amount which, prior to April 1, 1901, shall have accrued upon any installments of dividends accruing, but not matured, on any such preferred stock at the date of delivery thereof to the Steel Company.

The Steel Company further agrees that the dividends on all the preferred stock of the Steel Company to be issued by it hereunder, shall begin to accrue from April 1, 1901.

Fourth. The Steel Company, without prejudice to the further exercise of its chartered rights to increase or to decrease its capital stock, agrees that it will lawfully increase its authorized capital stock to an amount sufficient to enable it to issue and to deliver its preferred stock and its common stock to the aggregate amount hereinbefore provided.

Fifth. J. P. Morgan & Co., in behalf of the Syndicate, will bear and will pay the statutory fees and taxes for the proposed increase of the capital stock of the Steel Company.

Sixth. This agreement, and any agreement in pursuance thereof, is and shall be strictly *inter partes;* and no stockholder of any of the corporations above referred to shall be deemed to have any right hereunder.

In witness whereof, these presents have been duly executed by the parties hereto the day and year first above written.

UNITED STATES STEEL CORPORATION,
[L.S.] By W. J. CURTIS, *President.*
Attest:
CHARLES MACVEAGH,
Secretary, J. P. Morgan & Co.

90. COMPANIES WHOSE STOCKS WERE ACQUIRED BY UNITED STATES STEEL CORPORATION AT OR SHORTLY AFTER ITS ORGANIZATION IN 1901, AND THE PRINCIPAL SUB-COMPANIES OR PROPERTIES OF THESE CONSTITUENT COMPANIES[1]

[See reference notes on p. 327.

[The subsidiary companies or properties of the constituent concerns here given are those held by them on April 1, 1901. They may differ from those originally acquired by such constituent concerns, first, because some of the properties originally acquired by them were dismantled or abandoned and, second, because the constituent concerns, as indicated on this table, organized some of these subsidiaries, and acquired additional properties. Moreover, a number of the plants given in this table were dismantled or abandoned immediately after the formation of the Steel Corporation Such plants are indicated in italics. Most of the subsidiaries of the main constituent concerns were owned in fee in 1901. Those still held by stock ownership in 1901 are indicated by an asterisk.]

I. COMPANIES MAKING CHIEFLY CRUDE AND SEMIFINISHED STEEL OR THE HEAVIER FINISHED STEEL PRODUCTS

Carnegie Company of New Jersey

Carnegie Steel Company of Pennsylvania owning—
    Edgar Thomson Works, Bessemer, Pa.
    Duquesne Works, Duquesne, Pa.
    Homestead Works, Munhall, Pa.
    Upper and Lower Union Mills, Pittsburg, Pa.
    Carrie Blast Furnaces, Rankin, Pa.
    Lucy Blast Furnaces, Pittsburg, Pa.
    Howard Axle Works, Howard, Pa.
* Pennsylvania and Lake Erie Dock Company (43.6 per cent).
* New York, Pennsylvania, and Ohio Dock Company (25 per cent).
* Carnegie Land Company.
* Conneaut Land Company.
* Oliver Iron Mining Company (83⅓ per cent)—
    Owning a large number of active and inactive iron-ore properties on the Michigan and Mesabi Ranges, acquired from various independent mining companies.
* Pewabic Company (50 per cent).
* Pittsburg, Bessemer, and Lake Erie Railroad Company (52 per cent).
* Union Railroad Company.
* Pittsburg Steamship Company (83⅓ per cent).
* Pittsburg and Conneaut Dock Company.
* Pittsburg Limestome Company, Ltd. (75 per cent).
* Carnegie Natural Gas Company.
* Youghiogheny Northern Railway.
* Mount Pleasant Water Company.
* Youghiogheny Water Company.
* Trotter Water Company.
* Mingo Coal Company.
* Union Supply Company.
* H. C. Frick Coke Company—
    Holding by direct ownership or through subsidiary companies about 40,000 acres of coking-coal land; 11,000 coke ovens; 3,500 dwellings, and other property.

Federal Steel Company

* Illinois Steel Company—
    South Chicago Works.
    North Chicago Works.
    Milwaukee Works.
    Union Works.
    Joliet Works.
    * Southwest Connellsville Coke Company.
    * Chicago, Lake Shore, and Eastern Railway Company.
    * Cundy Iron Company.
    * Mount Pleasant Supply Company.
* Minnesota Iron Company—
    Owning various ore mines and undeveloped mineral lands in Minnesota.
    * Duluth and Iron Range Railroad Company.
    * Minnesota Steamship Company.
* Minnesota Dock Company (55 per cent).
* Lorain Steel Company (Ohio)—
    Steel plant at Lorain, Ohio.
* Lorain Steel Company of Pennsylvania—
    Steel Plant at Johnstown, Pa.
        (Formerly owned by the Johnson Company.)
* Ingleside Coal Company.
* Johnstown and Stony Creek Railroad Company.
* Lake Terminal Railroad Company.
* Elgin, Joliet, and Eastern Railway Company.
* Eureka Fuel Company.[1]
* Masontown and New Salem Railroad Company.[1]
* Huron Water Company (50 per cent).[1]

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[1] From the *Report of the Commissioner of Corporations on the Steel Industry*, Part I (1911), p. 107.

[Compare with this statement Selection 68: "The Holding Company"—EDITORS.]

National Steel Company

• Ohio Steel Company, Youngstown, Ohio—
  • Biwabik Mine (25 per cent).
King, Gilbert & Warner Company, Columbus, Ohio—
  • Columbus Stone Company, Columbus, Ohio (66⅔ per cent).
Shenango Valley Steel Company, New Castle, Pa.
• Bellaire Steel Company, Bellaire, Ohio.
• Aetna Standard Iron and Steel Company, Mingo Junction, Ohio.[1]
Buhl Steel Company, Sharon, Pa.
Sharon Iron Company, Ltd., Sharon, Pa.
Thomas Furnace Company, Niles, Ohio.
• Ohio Iron Company, Zanesville, Ohio.
• Rosena Furnace Company, New Castle, Pa.
• National Mining Company (33⅓ per cent).[3]
• Chapin Mining Company.
• Winthrop Iron Company.
• Standard Connellsville Coke Company, Pleasant Unity, Pa.
• Continental Coke Company, Uniontown, Pa.
• Mutual Transportation Company.
• Menominee Transit Company.

II. COMPANIES MAKING MORE HIGHLY ELABORATED PRODUCTS

American Steel and Wire Company of New Jersey

American Steel and Wire Company of Illinois—
  Consolidated Steel and Wire Company (a consolidation, with 6 plants in 1901).
  Salem Wire Nail Company, Salem and *Findlay*, Ohio.
  H. P. Nail Company, Cleveland, Ohio.
  American Wire Company, Cleveland, Ohio.
  American Wire Nail Company, Anderson, Ind.
  I. L. Ellwood Manufacturing Company, De Kalb, Ill.
  Ellwood Wire and Nail Company, De Kalb, Ill.
Washburn & Moen Manufacturing Company (4 plants).
Worcester Wire Company, Worcester, Mass.
Cleveland Rolling Mill Company, Cleveland and Newburg, Ohio.
Oliver Wire Company, Pittsburg, Pa.
Oliver & Snyder Steel Company, Pittsburg, Pa.
Pittsburg Wire Company, Braddock, Pa.
Indiana Wire Fence Company, Crawfordsville, Ind.
Garden City Wire and Spring Company, Chicago, Ill.
Consolidated Barb Wire Company, Joliet, Ill. and *Lawrence, Kan.*
Laidlaw Bale Tie Company, Joliet, Ill.
Cincinnati Barb Wire Fence Company, Cincinnati, Ohio.
Union Rolling Mill Company, Cleveland, Ohio.
Portage Iron Company, Duncansville, Pa.
Newburgh Wire and Nail Company, Newburgh, N.Y.
Allegheny Furnace Company, Allegheny, Pa.
Shenango Valley Steel Company, New Castle, Pa.
Shoenberger Steel Company, Pittsburg, Pa.
Puget Sound Wire Nail and Steel Company, Everett, Wash.
• American Mining Company.[4]
• American Coke Company.[4]
• Juniata Coke Company, Dawson, Pa. (50 per cent).
• American Steamship Company.[4]
• Edgar Zinc Company, St. Louis, Mo., and Cherryvale, Kan. (80 per cent).
• Pennsylvania and Lake Erie Dock Company (19 per cent).
• Huron Water Company (50 per cent).[4]

National Tube Company

• National Tube Works Company, McKeesport and Pittsburg, Pa.
Riverside Iron Works, Wheeling and Benwood, W.Va., and Steubenville, Ohio.
Pennsylvania Tube Company, Pittsburg, Pa.
Oil City Tube Company, Oil City, Pa.
National Galvanizing Works, Versailles, Pa.
Syracuse Tube Company, Syracuse, N.Y.
Delaware Iron Company, New Castle, Del.
Allison Manufacturing Company, Philadelphia Pa.
Cohoes Tube Works, Cohoes, N.Y.
Ohio Tube Company, Warren, Ohio, and Norristown, Pa.
American Tube and Iron Company, Middletown, Pa., and Youngstown, Ohio.
Chester Pipe and Tube Company, Chester, Pa.
Oil Well Supply Company, Pittsburg, Pa.
• Western Tube Company, Kewanee, Ill.
• Pittsburg Tube Company, Pittsburg, Pa.
• Pennsylvania and Lake Erie Dock Company (7 per cent).

Shelby Steel Tube Company of New Jersey

- Shelby Steel Tube Company of Pennsylvania—
  - Shelby Steel Tube Company of Ohio—
    - *Garwood Seamless Tube Company, Garwood, N.J.*
    - Ellwood Weldless Tube Company, Ellwood City, Pa.
    - Greenville Tube Company, Greenville, Pa.
    - American Weldless Tube Company, Toledo, Ohio.
    - *Brewer Tube Company, Toledo, Ohio.*
    - *Mansfield Machine Works, Mansfield, Ohio.*
    - *United States Cold Drawn Steel Company, Cuyahoga Falls, Ohio.*
    - Shelby Steel Tube Company, Shelby, Ohio.
  - *New Castle Tube Company, New Castle, Pa.*
  - Albany Manufacturing Company, Albany, Ind.
  - Auburn Bolt and Nut Works, Auburn, Pa.
  - Pope Tube Company, Hartford, Conn.

American Tin Plate Company

American Tin Plate Company, Elwood and *Montpelier*, Ind.
• New Castle Sheet and Tin Plate Company, New Castle, Pa.
Shenango Valley Steel Company, New Castle, Pa.[6]
Monongahela Tin Plate Company, Pittsburg, Pa.
United States Iron and Tin Plate Manufacturing Company, McKeesport, Pa.
National Tin Plate Company, Monessen, Pa., and Anderson, Ind.
Pittsburg Tin Plate Works, New Kensington, Pa.
Pennsylvania Tin Plate Company, New Kensington, Pa.
Star Tin Plate Company, Pittsburg, Pa.
Humbert Tin Plate Company, Connellsville, Pa.
Washington Steel and Tin Plate Mills, Washington, Pa.
Crescent Sheet and Tin Plate Company, Cleveland, Ohio.
Falcon Tin Plate and Sheet Company, Niles, Ohio.
Beaver Tin Plate Company, Lisbon, Ohio.
Irondale Steel and Iron Company, Middleton, Ind.
La Belle Iron Works, Wheeling, W.Va.[6]
Wallace, Banfield & Co., Irondale, Ohio.
Aetna Standard Iron and Steel Company, Bridgeport, Ohio.[6]
Atlanta Steel and Tin Plate Company, Atlanta, Ind.
Baltimore Tin Plate Company, Baltimore, Md.
Blairsville Rolling Mill and Tin Plate Mill, Blairsville, Pa.
Cincinnati Rolling Mill and Tin Plate Company, *Cincinnati, Ohio.*
Great Western Tin Plate Company, Joliet, Ill
Ellwood Tin Plate Company, Ellwood City, Pa.
Johnstown Tin Plate Company, Johnstown, Pa.
Laughlin Nail Company, Martins Ferry, Ohio.
Morewood Company, Gas City, Ind.
Neshannock Sheet and Tin Plate Company, New Castle, Pa.
Ohio River Sheet and Tin Plate Company, Rochester, Pa.
Hamilton & Co., West Newton, Pa.
Marshall Bros. & Co., Philadelphia, Pa.
Britton Rolling Mill Company, Cleveland, Ohio.[6]
Canonsburg Iron and Steel Company, Canonsburg, Pa.
• National Mining Company (33⅓ per cent).[3]
Morton Tin Plate Company, Cambridge, Ohio.
Cumberland Steel and Tin Plate Company, Cumberland, Md.
• Champion Iron and Steel Company, Muskegon, Mich.
Reeves Iron Company, Canal Dover, Ohio.

American Sheet Steel Company

Cambridge Iron and Steel Company, Cambridge, Ohio.
Cambridge Manufacturing Company, Cambridge, Ohio.
Canton Rolling Mill Company, Canton, Ohio.
Corning Steel Company, Hammond, Ind.
Dennison Rolling Mill Company, Dennison, Ohio.
Dresden Iron and Steel Sheet Company, Dresden, Ohio.
Falcon Iron and Nail Company, Niles, Ohio.
P. H. Laufman & Co., Ltd., Paulton, Pa.

Saltsburg Rolling Mill Company, Saltsburg, Pa.
Midland Steel Company, Muncie, Ind.
Old Meadow Rolling Mill Company, Scottdale, Pa.
Piqua Rolling Mill Company, Piqua, Ohio.
Cincinnati Corrugated Company, Piqua, Ohio.
Struthers Iron and Steel Company, Struthers, Ohio.
Pittsburg Steel Manufacturing Company, Shousetown, Ohio.
West Penn Sheet Steel Works, Leechburg, Pa.
Chester Rolling Mill Company, Chester, W.Va.
Hyde Park Iron and Steel Company, Hyde Park, Pa.
Kirkpatrick & Co., Ltd., Leechburg, Pa.
Chartiers Iron and Steel Company, Carnegie Pa.
Scottdale Iron and Steel Company, Ltd., Scottdale, Pa.
New Philadelphia Iron and Steel Company, New Philadelphia, Ohio.
Reeves Iron Company, Canal Dover, Ohio.
Aetna Standard Iron and Steel Company, Bridgeport, Ohio.[2]
Apollo Iron and Steel Company, Apollo and Vandergrift, Pa.—
  • Apollo Gas Company.
• W. Dewees Wood Company, McKeesport, Pa., and Wellsville, Ohio—
  • Versailles Fuel Gas Company.
  • McKeesport Terminal Railroad Company.
Coshocton Rolling Mill Company, Coshocton, Ohio.

American Steel Hoop Company

• Isabella Furnace Company, Pittsburg, Pa.
William Clark & Sons, Pittsburg, Pa.
Lindsay & McCutcheon, Pittsburg, Pa.
J. Painter & Sons, Pittsburg, Pa.
Monessen Steel Company, Monessen, Pa.
Union Iron and Steel Company, Youngstown, Warren, and Girard, Ohio.
Pomeroy Iron and Steel Company, Pomeroy, Ohio.
Portage Iron Company, Ltd., Duncansville, Pa.
P. L. Kimberly & Co., Greenville and *Sharon*, Pa.
• Mahoning Ore and Steel Company (20 per cent).
• National Mining Company (33⅓ per cent).[3]
• Union Ore Company (50 per cent).
• Pennsylvania and Lake Erie Dock Company (8⅓ per cent).
• Etna and Montrose Railroad Company.

American Bridge Company

American Bridge Works, Chicago, Ill.
Berlin Iron Bridge Company, East Berlin, Conn.
Buffalo Bridge and Iron Works, Buffalo, N.Y.
Carnegie Steel Company, Limited (Keystone Bridge Company, bridge and structural plant), Pittsburg, Pa.
• Detroit Bridge and Iron Works, Detroit, Mich.
Edge Moor Bridge Works, Wilmington, Del.
Elmira Bridge Company, Elmira, N.Y.
Gillette-Herzog Manufacturing Company, Minneapolis, Minn.
Groton Bridge and Manufacturing Company, Groton, N.Y.
Hilton Bridge Construction Company, Albany, N.Y.
Horseheads Bridge Company, Horseheads, N.Y.
• Koken Iron Works, St. Louis, Mo.
LaFayette Bridge Company, LaFayette, Ind.
Lassig Bridge and Iron Works, Chicago, Ill.
Nelson & Buchanan Company, Chambersburg, Pa.[4]
New Columbus Bridge Company, Columbus, Ohio.
Pittsburg Bridge Company, Pittsburg, Pa.
Post & McCord, Brooklyn, N.Y.
Rochester Bridge and Iron Works, Rochester, N.Y.
Schultz Bridge and Iron Company, Pittsburg, Pa.
Shiffler Bridge Company, Pittsburg, Pa.
Union Bridge Company, Athens, Pa.
J. G. Wagner Company (bridge and structural plant), Milwaukee, Wis.
Wrought Iron Bridge Company, Canton, Ohio,
Youngstown Bridge Company, Youngstown, Ohio.
• A. & P. Roberts Company, known as Pencoyd Bridge Works, Pencoyd, Pa.
• Toledo Bridge Company, Toledo, Ohio.
• Alabama Bridge and Iron Company, Decatur, Ala.
• New Jersey Steel and Iron Company, Trenton N.J.

III. MISCELLANEOUS

Lake Superior Consolidated Iron Mines

Owning various important iron mines and properties in the Lake Superior region, controlling several hundred million tons of ore.

Also owning the stock of Duluth, Missabe and Northern Railway Company.

Bessemer Steamship Company

Owning a fleet of 25 steamers and 31 barges.

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[*] Indicates stock ownership in 1901.

[1] Organized by and in interest of Federal Steel Company. It may also be noted that, except as to the Illinois Steel Company's manufacturing plants, most of the various subsidiaries of the constituent concerns of the Federal Steel Company were directly organized by them and not acquired from other interests.

[2] Acquired blast furnaces and steel works only. (See note 6.)

[3] National Mining Company was promoted and organized in interest of National Steel Company, American Steel Hoop Company, and American Tin Plate Company.

[4] Promoted and organized in interest of American Steel and Wire Company of New Jersey after its organization.

[5] Acquired machinery and equipment only.

[6] Acquired tin-plate machinery and equipment only. A part of the property of this company was acquired by other constituent concerns. Such a division of plants was made in several other instances.

[7] Acquired sheet-mill machinery and equipment only.

91. AN EXAMPLE OF TRUST EFFICIENCY[1]

The International Harvester Co., generally speaking, has an advantage over independent manufacturers with respect to the cost of production of its machines. This is especially marked in the case of grain binders, the most important of the harvesting machines. Thus, the average factory cost of binders for the International Harvester Co. at its domestic plants for the two years, 1910 and 1911 combined, was $56.32, and ranged from $54.11 to $73.78 at the different plants. While the company produces most of the iron and steel required—on which its subsidiary steel company makes a very large profit—the cost of these materials to its implement plants is based on prevailing market prices, so that its costs in this respect are comparable with those of the independent producers. For the four independent companies that reported to the Bureau the cost of their binders, the average factory cost for the same period as computed from the data reported by them was $70.38. There was a wide range of cost among the four independent concerns, but only two of them showed a materially lower cost than the highest cost of the International Harvester Co. While differences in the style of construction of different makes of binders undoubtedly explain some of these differences in the cost, the chief reasons therefor were differences in economy of production, in which the International Harvester Co. has a large advantage in its great volume of output, at least at its McCormick and Deering plants. The output at these plants, however, was equally large before the merger.

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[1] Adapted from the *Report of the Commissioner of Corporations on the International Harvester Co.* (1913), pp. 26–28.

These figures of factory costs do not take account of general and miscellaneous expenses, nor of a much heavier selling expense which for binders sometimes amounts to $20.00 or even $25.00 per machine. General and miscellaneous expenditures were relatively much heavier for the independent companies than for the International Harvester Co., chiefly on account of great differences in volume of business, though possibly due also to differences in methods of keeping cost accounts. They may properly be grouped with manufacturing costs for the purpose of this comparison. If these expenditures are prorated over the cost of production, both for the International Harvester Co. and the independents, the average cost of binders for the International Harvester Co. becomes $58.57, and for the four independents $76.18.

A proper understanding of these relations of cost of production to the competitive position of the independent binder manufacturers, requires consideration also of the question of selling expense. The selling expense per binder for the International Harvester Co. is considerably higher than the average selling expense of the independents, and this fact partly compensates the latter for their higher average costs of production. Nevertheless the margin of profit between prices and cost of production and selling expense combined is markedly lower for the independents than for the International Harvester Co. Apparently the relatively high selling expense of the International Harvester Co. is due to the policy of maintaining a very elaborate selling organization, which gives it a strong hold on the trade and helps to secure to it a large volume of business. It appears to be the company's policy thus to maintain an expensive selling organization to push the sale of its goods rather than reduce prices on some of its most important lines, particularly harvesting machines.

Similarly in the case of mowers and rakes, for which the Bureau had sufficient data for comparing the costs of the International Harvester Co. with those of independents, it was found that the average cost of manufacture at the plants of the International Harvester Co. for the years 1910 and 1911 combined was lower than the average cost of the independents reporting. Prorating general and miscellaneous expense over the factory cost of these machines the advantage of the International Harvester Co. in this respect over the independents was even greater.

92. PROPOSED REMEDIES FOR THE EVILS OF TRUSTS

1. *Let-alone policy.*—Several of the witnesses are of the opinion that any evils connected with the industrial combinations will be remedied in the ordinary course of business, and that any attempt at regulation by law would be likely to result in more harm than good. Competition, either active or potential, is believed by these witnesses to be a sufficient preventive of monopoly and extortionate prices, while stockholders and investors are believed to be already sufficiently protected by statute and common law, especially in view of the fact that the state cannot guarantee to these persons immunity from carelessness and ignorance on their own part. It is also urged that, under the common law alone, the courts have always held as illegal any monopoly or combination distinctly shown to be in restraint of trade.

While making this general expression of opinion, some of these witnesses afterward admitted that certain measures tending toward giving the public, and particularly the stockholders, more information regarding the nature of the business might be advisable.

2. *Direct suppression of monopolistic combinations.*—A few witnesses are inclined to favor the more general enactment of statutes along the lines of those already adopted by numerous states, directly prohibiting the transaction of business by combinations seeking to restrain trade or to control prices. Some witnesses believe that the present statutes, in regard to the states where they have been enacted, in conjunction with the national antitrust law of 1890, and the interstate commerce law, would, if vigorously enforced, be all the legislation necessary.

Perhaps a greater number of witnesses, however, directly expressed themselves as opposed to so-called "antitrust" legislation, while others distinctly imply a similar opposition. These witnesses, including some opponents of individual combinations, as well as lawyers, hold that combination is a natural outgrowth of modern conditions, and that it is practically impossible to suppress it. If any legislation is needed, it should be in the form of regulation and publicity only.

3. *Prohibition of destructive competition.*—Two or three witnesses testifying in opposition to the Standard Oil Company advocate legislation to prohibit "destructive competition." The witnesses have in mind especially the cutting of prices in local markets, while retaining them at high figures in other parts of the country. A requirement that, freight rates being considered, prices should be made uniform in all markets is advocated. It is also suggested that general cutting of prices below actual cost of production for the purpose of driving out competitors should, perhaps, be prohibited. No criticism upon these suggestions is offered directly by other witnesses. In connection with this Senator Lee advocated limiting capitalization.

4. *Publicity.*—Many of the witnesses, including even representatives of combinations, are of the opinion that a much greater publicity regarding the affairs of such combinations than is now customary would tend to remove many of the evils. As regards the general public, the knowledge thus secured would avail to prevent the maintenance of extortionate prices as well as unfair methods and conditions of competition. Stockholders and investors would also be protected against abuses by promoters and officers of corporations.

How this publicity should be brought about and the degree to which it should extend is a matter upon which no general agreement existed among the witnesses. Some are inclined to think that it would be wise if somewhat detailed balance sheets of the accounts of the larger combinations could be made public. More of the witnesses, including especially lawyers and officers of corporations, seem rather of the opinion that when the corporation is first organized the details regarding its organization, the values at which plants and other property are taken in, the profits of the promoters, etc., should be made public. After the corporation has been engaged in business, however, while the details of its management should be made known with considerable fullness to the stockholders, the outside public should be given little more information than at present, lest thereby competitors may secure an advantage.

Many of the witnesses believe that publicity, if properly established and enforced, would prove a very efficient remedy. Others think that, while it might be useful, it would not alone be sufficient.

At least one of the witnesses is of the opinion that this publicity should be enforced upon all public corporations, such as railways, street railways, etc., but not upon ordinary manufacturing or mercantile corporations.

Strong differences of opinion exist among the different witnesses as to whether legislation along any of the lines suggested, or additional legislation, should be by the individual states or by the federal government. The witnesses also disagree as to the constitutionality of various forms of legislation, both in the case of the states and in the case of the federal government. Some witnesses were of the opinion that state legislation would be of little service unless practically all of the states adopted uniform laws, and this is considered an impossibility. Others seem to think that legislation, even by a few of the states, if of the right kind, would be very useful. There is perhaps, however, a rather general expression of opinion among those who favor any legislation at all that federal legislation, if constitutional, is desirable, at least to supplement state legislation as to combinations, if not, perhaps, to take entire jurisdiction regarding them.

5. *State legislation.*—The chief specific suggestions regarding state legislation were:

(*a*) The classification of corporations should be made much stricter than at present, and each class should be confined closely to the exercise of its specified powers.

(*b*) There should be strict inspection of corporations by state officials, and publicity should be enforced through reports. This, of course, applies primarily to action by the states as regards their own domestic corporations.

(*c*) Combinations, in whatever form (even if it be that of a single corporation), between different corporations, where monopolistic intent can be shown, should be prohibited.

(*d*) Foreign corporations should be forbidden by each state to do business within its borders unless conforming to its laws. As to this last suggestion, the powers of states over foreign corporations, so far as their interstate business is concerned, would be very limited. It appears that the courts would be likely to hold that the states would require a special authorization from Congress to enable them to act with any considerable effectiveness in this regard, even if the power could be secured in that way.

6. *Federal legislation.*—The lines of federal legislation suggested fall mainly under the following heads:

(*a*) Creation of federal corporations under strict federal laws. Some would favor incorporation under federal laws only in case of very large corporations, while from the legal standpoint some others would fix the distinction between state and federal corporations along the line of commerce within the states as distinguished from interstate commerce. The representatives of combinations favoring such federal laws consider that one of their chief advantages would be to prevent unwarranted interference with the business of the corporations by individual states. Some of the witnesses, however, consider that the creation of federal corporations would be harmful as well as unconstitutional.

(*b*) In connection with federal incorporation, or apart from it, certain witnesses favor a considerable degree of regulation of corporations on the part of the federal government. In this connection, publicity, through reports and inspection, is advocated. A Bureau of Industry is suggested by one witness, having powers somewhat similar to those of the Interstate Commerce Commission. The reports to be made to this body should be of such a nature as to disclose the condition of the business of the corporation, especially as to whether it possessed or was likely to acquire a monopoly or not.

(*c*) *Strengthen Interstate Commerce Commission.*—Some of the witnesses complain of the inefficiency of the Interstate Commerce Commission. Others urge that it be given greater power, even judicial power, and that pooling among railroads be permitted under its supervision. Especially is it recommended in the testimony taken before the subcommission on transportation that its hands be strengthened by giving it power of audit of railway accounts, power of enforcing its decisions, etc., it being urged that in this way freight discriminations in favor of the large shippers, the combinations, could be prevented.

(*d*) Two witnesses are inclined to the opinion that unless Congress in some way assumes full control of corporations the United States Government should remove, by specific act of Congress, the limitations which now are likely to be laid by the courts, on the basis of the federal constitution, upon the powers of the states over monopolistic combinations, so far as their interstate business is concerned. It was thought, on the whole, that such an act of Congress would probably be upheld as constitutional by the courts.

(*e*) *Removal or lowering of tariff.*—Several of the witnesses, though not objecting in the main to the principle of a protective tariff, were of the opinion that in some cases the tariff encouraged, or, even as one said, was the chief cause of the trust. In such cases they thought it should be lowered or abolished. Mr. Havemeyer expressed himself most strongly in favor of a low horizontal tariff of not over 10 per cent, while Mr. Buynitsky proposed that if there were shown to be a monopoly in any protected industry the president might be empowered to lower the tariff on the products of that industry, by executive order, not more than 20 per cent, nor for a longer period than five years.

(*f*) *Powers of Congress.*—Much discussion was presented before the Commission as to the constitutional powers of Congress to enact legislation along any of the lines above suggested. It is admitted that Congress has exclusive control over interstate commerce, and the preponderance of opinion seems to be that it has power to create corporations to carry on such commerce, although this is disputed. Congress is admitted to have no power over purely manufacturing corporations not engaged in interstate business. There is much doubt, however, as to the precise line where business ceases to be domestic and becomes interstate. Professor Huffcut, at least, is inclined to think that the courts, even under the present constitution, would uphold quite general control over the general business of corporations carrying on a widespread business among the several states, on the ground that a large portion, at least, of that business—perhaps most of it—is interstate in character. The control of that would practically control all. In this connection this witness suggests that Congress could probably constitutionally compel such large corporations to submit to federal legislation, and perhaps to incorporate under federal laws, by one of the three following methods:

a) By forbidding the use of the mails to state corporations engaged in interstate commerce, especially so far as they are shown to be monopolistic and therefore subject to the police power.

b) By levying a practically prohibitive tax upon state corporations engaged in interstate commerce, as has been done with note issues of state banks. Other witnesses suggest that the Government can acquire jurisdiction, in order to compel reports and publicity, by imposing taxes, and some are inclined to suggest that these taxes should be made progressive.

c) By directly prohibiting state corporations from engaging in interstate commerce.

93. FEDERAL ANTI-TRUST LEGISLATION

I. THE SHERMAN ANTI-TRUST ACT[1]

§ 1. Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several states, or with foreign nations, is hereby declared to be illegal. Every person who shall make any such contract, or engage in any such combination or conspiracy, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding five thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

§ 2. Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons to monopolize, any part of the trade or commerce among the several states, or with foreign nations, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding five thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

§ 3. Every contract, combination in form of trust or otherwise, or conspiracy, in restraint of trade or commerce in any territory of the United States or of the District of Columbia, or in restraint of trade or commerce between any such territory and another, or between any such territory or territories and any state or states or the District of Columbia, or with foreign nations, or between the District of Columbia and any state or states or foreign nations, is hereby declared illegal. Every person who shall make any such contract or engage in any such combination or conspiracy shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding five thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

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[1] 26 U.S. Statutes 209.

§ 4. The several circuit courts of the United States are hereby invested with jurisdiction to prevent and restrain violations of this act; and it shall be the duty of the several district attorneys of the United States, in their respective districts, under the direction of the Attorney-General, to institute proceedings in equity to prevent and restrain such violations. Such proceedings may be by way of petition setting forth the case and praying that such violation shall be enjoined or otherwise prohibited. When the parties complained of shall have been duly notified of such petition the court shall proceed, as soon as may be, to the hearing and determination of the case; and, pending such petition, and before final decree, the court may at any time make such temporary restraining order or prohibition as shall be deemed just in the premises.

§ 5. Whenever it shall appear to the court before which any proceeding under section four of this act may be pending, that the ends of justice require that other parties should be brought before the court, the court may cause them to be summoned, whether they reside in the district in which the court is held or not; and subpoenas to that end may be served in any district by the marshal thereof.

§ 6. Any property owned under any contract or by any combination, or pursuant to any conspiracy (and being the subject thereof) mentioned in section one of this act, and being in the course of transportation from one state to another, or to a foreign country, shall be forfeited to the United States, and may be seized and condemned by like proceedings as those provided by law for the forfeiture, seizure, and condemnation of property imported into the United States contrary to law.

§ 7. Any person who shall be injured in his business or property by any other person or corporation by reason of anything forbidden or declared to be unlawful by this act may sue therefor in any circuit court of the United States in the district in which the defendant resides or is found, without respect to the amount in controversy, and shall recover threefold the damages by him sustained, and the costs of suit, including a reasonable attorney's fee.

§ 8. That the word "person" or "persons," wherever used in this act, shall be deemed to include corporations and associations existing under or authorized by the laws of either the United States, the laws of any of the territories, the laws of any state, or the laws of any foreign country.

II. PROVISIONS OF THE FEDERAL TRADE COMMISSION ACT

This act creates a Federal Trade Commission of five members, appointed by the President with the consent of the Senate. The members serve for a term of seven years with an annual salary of $10,000. The Commission succeeds to the work of the Bureau of Corporations.

Unfair methods of competition in commerce[1] are declared unlawful and the Commission is to prevent persons, partnerships or corporations (except banks and common carriers, which are otherwise controlled) from using such methods. Where such methods are in use and the Commission deems it to the interest of the public to have them stopped the Commission must hold a hearing, and if it then considers the methods employed illegal under this act it shall order the practice stopped. The party subject to the order may appeal from it to the United States Circuit Court of Appeals, and the Commission, in case its order is not obeyed, may appeal to the Court to enforce its order. The findings of the Commission, if supported by testimony, are conclusive in the Court. The Court may affirm, modify, or set aside the order of the Commission.

The Commission has the power: (*a*) to gather information about, and investigate the business of, those subject to this act; (*b*) to require special and annual reports of such corporations; (*c*) to investigate, and on request of the Attorney-General they must investigate, the way in which court decrees against the violation of the federal anti-trust laws are being carried out; (*d*) on the direction of the President or either House of Congress to investigate and report the facts as to any alleged violation of the anti-trust laws; (*e*) on application of the Attorney-General to investigate and recommend readjustments in the business of any corporation alleged to be violating those laws; (*f*) to make public such information, except trade secrets and names of customers, as it may deem expedient in the public interest, and to submit reports and recommendations for legislation to Congress; (*g*) to classify corporations and make rules to carry out this act; (*h*) to investigate trade conditions in and with foreign countries where combinations, practices, or other conditions may affect our foreign trade, and to report thereon to Congress with any recommendations.

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[1] [What constitutes "unfair methods of competition," not being defined in the act, is left for the Commission to determine. This in part explains the absence of any penalty for committing such acts.—EDITORS.]

Power is given the Commission to summon witnesses to testify, secure records, etc., and penalties are provided for failure to obey its orders in these respects. But no person shall be prosecuted or penalized on account of any matter concerning which he may testify or produce evidence under subpoena of the Commission.

III. PROVISIONS OF THE CLAYTON ANTI-TRUST ACT

The term "Omnibus Bill" frequently applied to the Clayton act well indicates its character as covering a wide range of more or less related topics. For the sake of greater clearness concerning its significant features only the chief provisions are stated here, though nothing but a detailed study of the phraseology of the act itself can give an accurate conception of its provisions.

In the main the act attempts to deal with two things: (1) it seeks to check certain undesirable practices found among industrial combinations, railroads, and banking institutions; (2) it seeks to give labor organizations greater freedom from prosecution under the anti-trust laws and in proceedings connected with injunctions.

In connection with the first purpose the law forbids: (*a*) discriminations in prices between purchasers where the effect may be substantially to lessen competition or create monopoly, though differences in price due to variations in quantity, quality, cost of selling, or transportation, etc., are permitted; (*b*) "tying clauses" where commodities, patented or unpatented, are leased or sold, or a price is fixed or discount or rebate given, on condition that the lessee or purchaser shall not use or deal in the goods of a competitor and where the effect of such an understanding is substantially to lessen competition or tend to create a monopoly in any line of commerce; (*c*) the holding of the stock of one corporation by another where the effect may be substantially to lessen competition or tend to create a monopoly, (but this does not apply to the cases of certain subsidiaries or to branch lines or extensions of railroads or to stock purchased solely as an investment where there is no such tendency nor to such rights heretofore legally acquired); (*d*) after two years no person shall be a director, officer, or employee of more than one bank where one of them is organized under the laws of the United States and either has deposits, capital, surplus, and undivided profits of over $5,000,000; nor shall one person be an officer, director, or employee of more than one bank in any place of over 200,000 inhabitants where either bank is organized under the laws of the United States; nor shall one person be a director in more than one concern engaged in commerce (other than banking institutions and common carriers) any one of which has capital, surplus, and undivided profits over $1,000,000 if such concerns are or have been competitors so that an elimination of their competition would constitute a violation of the anti-trust laws.

In the case of railroads, after two years, contracts or purchases of goods to the amount of over $50,000 in any one year from other concerns, when the president, manager, purchasing officer, or agent of the railroad is in any way interested in such concern, shall not be made except through free competitive bids under rules determined by the Interstate Commerce Commission.

Any person injured in his business by anything forbidden in the anti-trust laws can sue in the federal courts and recover treble damages. A violation of any of the penal provisions of the anti-trust laws by a corporation shall also be deemed a violation by the officers authorizing the act and deemed a misdemeanor subject to fine or imprisonment.

The prohibitions enumerated above are to be enforced, where applicable to common carriers, by the Interstate Commerce Commission; where applicable to banking institutions, by the Federal Reserve Board; where applicable to concerns otherwise engaged in commerce, by the Federal Trade Commission. Whenever there is reason to believe that any of these prohibitions are being violated the respective board or commission shall serve a complaint on the offending person or concern and hold a hearing, and if it shall then appear that the law is being violated an order shall be issued against the practice. The person or concern against whom it is issued, or, in case the order is not obeyed, the respective board or commission, may appeal to the United States Circuit Court of Appeals, which, upon a hearing, may affirm, modify, or set aside the order.

In the second group of provisions, which includes those dealing with labor organizations and their practices, the law first declares that the labor of a human being is not a commodity or an article of commerce and that nothing in the anti-trust laws shall be construed to forbid the existence and operation of labor, agricultural, or horticultural organizations, or to restrain them from lawfully carrying out their objects, nor shall such organizations be construed to be illegal combinations under the anti-trust laws.

The law somewhat modifies the use, and the method of issuing and enforcing injunctions in labor disputes, prohibiting their use unless necessary to prevent irreparable injury to property rights for which there is no adequate remedy at law. Also injunctions shall not be issued against striking and peaceful picketing or boycotting by peaceful and lawful means, and such acts shall not be held to be a violation of any law of the United States. In cases of contempt of court arising under this act the accused may demand a trial by jury, except in suits prosecuted by the United States or cases of contempt in or near the presence of the court.

VIII. MARKETS AND TRADING

94. METHODS OF MARKETING[1]

I. METHODS OF SALE

In the early stages of our industrial history, sales were made in bulk. The purchaser saw the actual goods before the sale was made.

Later, sale by sample appeared. The purchaser bought goods represented to be identical with the sample he was shown. The introduction of this method of sale was necessitated by the widening of the market and was made possible by improvement in commercial ethics and by increasing standardization of the product. The purchaser must have confidence not only in the honest intention of the producer to furnish goods identical with the sample, but also in his ability to produce identical goods. Hence, increasing uniformity in product through machine methods of manufacture was a factor in the increase of sale by sample.

Sale by description is the most modern development in distribution. An even higher ethical standard is required than for sale by sample. Moreover, sale by description requires a higher level of general intelligence than sale in bulk or sale by sample. Sale by description in its modern development is, in a sense, a by-product of the printing press.

All three methods of sale are in use in modern commercial life. The consumer still purchases a large part of the commodities which he uses under a system of sale in bulk. He sees the goods before he buys them. The middleman, buying in larger quantities, generally purchases from sample. But sale by description becomes each year of increasing importance at every stage in the system of distribution. Even where the purchaser actually sees a sample or the goods themselves before the sale is concluded, the method of sale by description has in many cases previously been used to create in him a demand for the commodity.

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[1] Adapted from A. W. Shaw, "Some Problems in Market Distribution," *Quarterly Journal of Economics*, XXVI, 721–51 (August, 1912).

[See also Selection 102, for a discussion of "Advertising and Demand" by the same author —EDITORS.]

II. AVAILABLE AGENCIES FOR SELLING

As selling is the initial step in distribution, it is necessary to consider the agencies for selling available to the merchant-producer. There are three general agencies to be considered. These are (1) middlemen, (2) the producer's own salesman, and (3) advertising, direct and general. The business man faces the problem of what agency or what combination of agencies is the most efficient machinery for the distribution of his particular commodity.

The method of sale adopted will largely govern the choice of agency to be employed. If the sale is to be in bulk, the purchaser seeing the actual goods before the purchase is made, distribution through a series of middlemen is generally most feasible. However, such sale in bulk through the producer's own salesmen is possible in some cases. Small household appliances are often sold in this manner by door-to-door salesmen.

If sale by sample is the general method adapted to the commodity in question, middlemen or salesmen will often be the more desirable agencies. Many commodities are distributed through middlemen, the sale at each stage in the process being by sample save for the final stage from retailer to consumer, where the sale is in bulk. Direct salesmen, perhaps in the majority of cases, sell from sample. And even selling by direct advertising alone is in some cases adapted to a method of sale by sample. Thus the distributer by mail of a commodity which is not bulky may enclose in his direct advertising material a sample of the commodity.

Where sale by description is used exclusively, advertising, direct or general, is likely to be the most efficient agency. Yet here again it is possible, though generally not economical, to distribute a commodity through a series of middlemen and yet the sale at each stage be accomplished by description. And the use of salesmen in selling by description is common, as where heavy machinery is sold by the use of photographs, or hardware and like commodities from catalogues.

The number of possible combinations of methods and agencies renders the problem of the producer-merchant an intricate one. It will be seen that he has a difficult task in analyzing the market with reference to his goods, and in working out that combination of methods and agencies which will give him the most efficient system of distribution.

III. THE MIDDLEMAN IN DISTRIBUTION

The middleman is a by-product of a complex industrial organization. Chart I shows in rough outline the evolution of the middleman from the early period when producer dealt directly with consumer to the appearance of the orthodox type of distribution (late in the eighteenth century and in the first quarter of the nineteenth century) when a complicated series of middlemen existed. It should be noted that this chart represents the typical case of the domestic product rather than that of imported commodities.

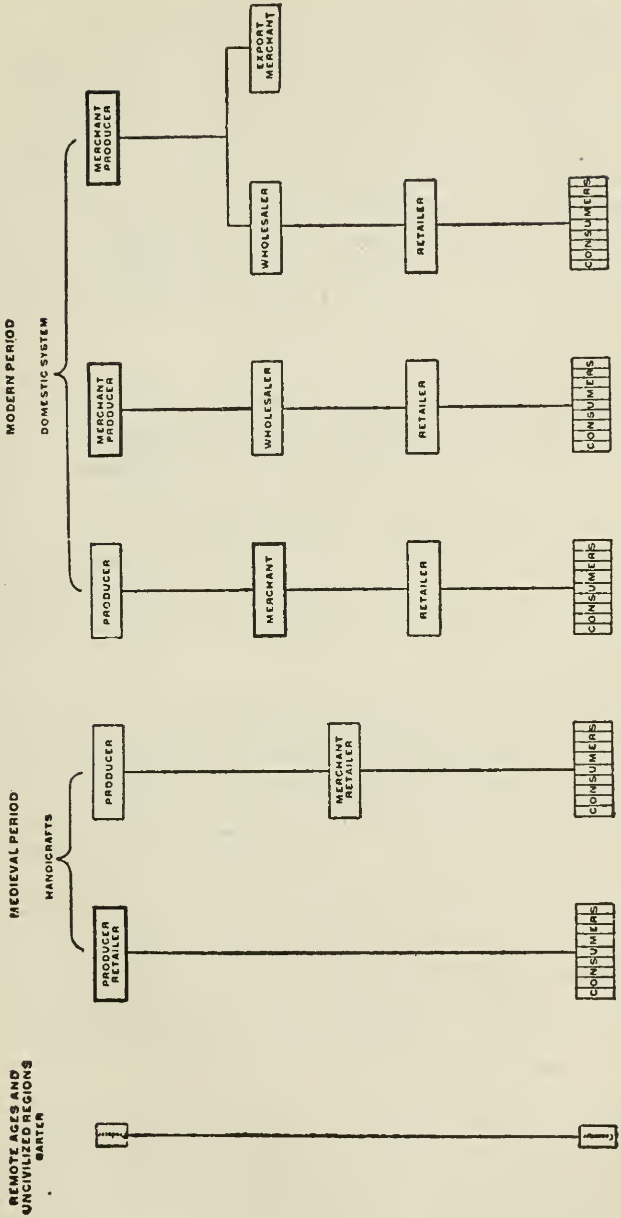
In the more primitive barter economy, the producer deals directly with the consumer, and middlemen take no part in the transaction. In the mediaeval period, as the handicrafts become specialized occupations under a town market regime, the producer is a retailer and sells directly to the consumers. Then as the market widens, a division of labor is necessary and the merchant appears as an organizer of the market. The handicraftsman becomes a steady worker, no longer concerning himself with selling. He becomes in many cases practically an employee of the merchant-retailer, who provides the stock and bears the risk. The merchant takes the finished goods from the producer and sells them to the consumer.

Steadily the market widens until we find a national market. The merchant is no longer a single intermediary between the producer and the consumer. The merchant who takes the goods from the producer disposes of them to retail merchants who in turn distribute them to the consumer. After a long period, we find the producers gradually strengthening their financial position, and freeing themselves from the control of a single merchant. They become merchant-producers. They assume the burden of production, and dispose of the product to various wholesalers who in turn sell to retailers, and they to the consumers. As a world-market appears, the producer disposes of a part of his product to the export merchant.

In the early days of the factory system, shown in Chart II, we find that the producers have lost their character as merchants and are devoting themselves to the problems of production. The pressure on production has continued, and with the increasing intricacy of industry producers have found it necessary to concentrate their attention on production. The selling agent appears as a link in the chain of distribution to relieve the producer of the task of selling his product. The selling agent undertakes to sell the entire output of the

CHART I

EVOLUTION OF THE MIDDLEMAN



producer, distributes it among wholesalers, who in turn distribute it to retailers, and the retailers to the consuming public.

This may be termed the orthodox type in distribution, a type almost universal in the early decades of the nineteenth century, and still common, as in the textile industry in New England.

Just as the long period of development from a system of barter economy to the early decades of the factory system showed a continuous tendency for increase in the number of middlemen intervening between the producer and the consumer, so recent years have shown a growing tendency to decrease the number of successive steps in distribution. The tendency is apparent in nearly every industry and has been clearly marked in recent years.

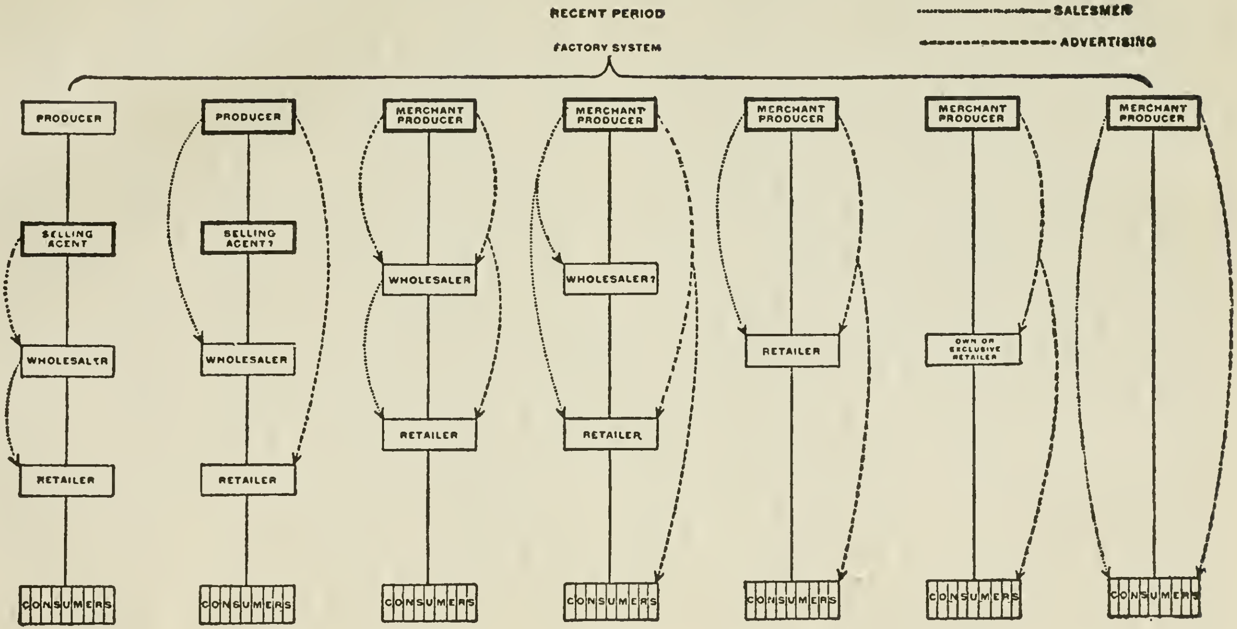
Under the orthodox type of distribution, with numerous middlemen intervening between the producer and the consumer, the producer is in a position of disadvantage. The fixed charges under which he operates render it necessary that he operate continuously. The outlet for his goods, however, is controlled by middlemen. Hence the middleman is able to exert pressure upon the producer and force a narrowing of his margin of profit. To free themselves from this pressure, the stronger merchant-producers seek to go around the immediate middlemen, thus decreasing the number of steps in the system of distribution.

Chart II is an attempt to show diagrammatically the development of this tendency to decrease the number of successive middlemen. By the use of salesmen going directly to the wholesaler and by advertising directed to the retailer the producer has displaced the selling agent in many cases. Sometimes the advertising is directed not only to the retailers but also to the wholesalers. To strengthen still further his position the producer will often use advertising directed to the consumer to build up a demand for his product. This involves the necessity for a product differentiated by trade mark, brand, or trade name. When the producer thus directly builds up a demand among consumers, he often takes the further step of sending his salesmen to the retailer, thus omitting the wholesaler entirely from his system of distribution.

The most extreme step in the process is the complete elimination of middlemen, and the sale direct from the merchant-producer to the consumer, either by advertising alone or by salesmen supplemented by advertising. Manufacturers of specialties have largely adopted this scheme of distribution and the enormous growth of the mail-order

CHART II

MODERN TENDENCY TO REDUCE NUMBERS OF SUCCESSIVE MIDDLEMEN



business in recent years gives evidence that in some lines of distribution there are economies in this system.

The tendency to decrease the number of middlemen is one of the most characteristic features of modern distribution. It promises to show much greater development in the future if present economic conditions substantially continue. The attempts of associations of retailers to check the growth of direct selling have thus far not been successful. In their desire to force the manufacturer to dispose of his product through regular trade channels they sometimes invoke the boycott. But our common state statutes, prohibiting combinations in restraint of trade, prevent effective agreements to boycott producers who sell direct. And the advantages of direct selling in some lines render the producer willing to incur the disfavor of the trade.

To understand what seems to be a present tendency to go around the middleman as well as to consider the problem of the merchant-producer with reference to the use of middlemen in distribution, it is necessary to analyze the functions performed by the middleman. Roughly the general functions may be listed as follows:

1. Sharing the risk.
2. Transporting the goods.
3. Financing the operations.
4. Selling (communication of ideas about the goods).
5. Assembling, assorting, and reshipping.

These functions were at first taken over by areas; that is, each successive middleman in the series took over a part of each function. Each took the risk of destruction of the goods while he held title. Each took the risk of credit losses. Each took a share in the transportation of the goods along the route from the producer's stockroom to the hands of the consumers. Each took a part in financing the entire operation. Each had a part in the selling, disposing of the goods he purchased to succeeding middlemen and finally to the consumer. And each finally took a part in assembling, assorting, and reshipping the goods to make them physically available to the consumer.

But at a relatively early date a taking-over of these functions by kind instead of by area appeared. Today we have what may be termed functional middlemen in the insurance companies, direct transportation companies, and banks.

The insurance company is in a real sense a middleman in distribution. When it insures the producer against loss of goods by fire, against credit losses, and the like, it is taking over the function of risk formerly shared by successive middlemen. Today the insurance company will assume practically the entire element of risk. It is possible, for instance, for a large department store to insure against unseasonable holiday weather. The insurance company differs from the ordinary middleman in that it takes over one function as such rather than portions of a number of functions.

So improvements in direct transportation have enabled the producer to turn to a functional middleman to convey the goods to the consumer. The transportation companies and the express companies are in a true sense middlemen in distribution, though they perform but one of the functions formerly shared by the successive middlemen who took over functions by area. The physical conveyance of the goods to the consumer was formerly one of the most important functions performed by a series of middlemen.

So the function of financing the operations has largely been taken from the regular middleman. In former times the middleman took his part in the burden of finance in addition to his other functions. In most industries today the bank, as a functional middleman, cares for the element of finance in the operations of distribution. By advancing on goods and on commercial paper, it largely absorbs the function of finance in distribution.

Another development has lessened the dependence of the producer upon the middleman for financial assistance. The application of the corporate form to industrial organization has made it possible to draw together larger bodies of operating capital and hence to place the producer in a stronger financial position.

As a result of the development of functional middlemen, ready to take over the functions of sharing the risk, transporting the goods, and financing the operations, the importance of the middleman for these functions has diminished. There remain the function of selling (the communication of ideas about the goods) and the function of assembling, assorting, and reshipping. It is as to these functions that the middleman is of most importance today.

IV. THE SALESMAN AS AN AGENCY IN DISTRIBUTION

A less detailed analysis than was necessary in the case of the middleman will be required for the salesman. The primary function for which salesmen are used is the communication of ideas about the goods to the prospective purchaser; that is, the selling function.

The salesman, in the sense of a man sent to prospective purchasers, generally sells from sample. In some few cases the sale may be in bulk, the salesman showing the prospective purchaser the actual goods to be purchased. And as has been suggested, the salesman may sell entirely by description, merely showing the prospective purchaser pictures of the goods, as in selling from catalogue.

When the producer finds it desirable to go around a middleman and to sell directly to a subsequent middleman or to the consumer, he may use for the selling function either his own salesmen or advertising, or the two in combination.

When one analyzes the salesman as an agency for sale by description in contrast with advertising, direct or general, he must take into account the human element again. Advertising has the obvious advantage that you can convey exactly the idea you wish to convey in the form you wish to convey it. It lacks, however, the personality and the timeliness of the salesman's visit; it lacks adaptability, the opportunity to use the mood of the customer and all the various human factors that make the salesman effective.

More than this, when the salesman has aroused in the prospective purchaser a demand for the goods in question, he is on the ground to close the sale at once. In the case of advertising, the demand aroused must, in general, be strong enough to lead the prospective purchaser to go to some trouble before he obtains the actual goods. Hence a less intensive demand may be more immediately effective in the case of the salesman than when advertising is concerned.

It should here be emphasized that the analogy between direct salesmen and advertising is very close. Each agency is largely used to enable the producer to take over one function of the middleman, that is, the selling function. And in each case the root idea is the same. The producer seeks to communicate to the prospective purchaser through one or the other agency, or a combination of the two, such ideas about the goods as will create a conscious demand for them. The direct salesman and advertising are different modes of accomplishing the same end.

V. ADVERTISING AS AN AGENCY IN DISTRIBUTION

Advertising in the modern commercial sense is of comparatively recent development. Only in the middle of the nineteenth century did it commence to be of real importance in the commercial world. It is a necessary consequence of sale by description. So long as the prevailing code of commercial ethics made sale in bulk the only practical method, the middleman was an indispensable selling agency. But now that the general average of intelligence enables the prospective purchaser to gain an idea of the goods without seeing them and without seeing a sample, and now that the prevailing code of business ethics is such that the prospective buyer feels that he may rely upon the description given him, advertising becomes in many lines the most economical agency for the exercise of the selling function. Even where the actual sale is made by salesmen from sample, advertising is used as a supplementary agency to build up a demand which the salesman crystallizes. And sale by advertising alone may be applied today even where the purchaser demands to see the goods before concluding the purchase, by sending the goods to him on approval.

Not only is the modern development of advertising dependent upon the possibility of sale by description, but it also depends upon the increasing differentiation of commodities by trade marks, brands, and trade names. The producer cannot profitably convey to the consumer ideas about a certain food product which will build up a demand for that product, unless the consumer is able to identify the particular product when he goes into the grocery store to purchase it.

Advertising, in the broad sense, includes not only selling letters and circulars, but newspaper and periodical advertising, billboards and window cards, electric signs, street-car advertising, catalogues, and all the varied forms of modern commercial publicity. A rough classification is made between general and direct advertising. General advertising includes newspaper and magazine advertising, billboards, electric signs, street-car advertising and the like, aimed at the general public or some section of it. Direct advertising is used in reference to the sending of selling letters, circulars, or catalogues to the persons whose names appear on a mailing list and to reach whom the material sent is specially adapted.

VI. ANALYSIS OF THE MARKET

The problem presented by the United States as a consuming market is a complex one. Here are ninety-odd million people distributed over an area of more than 3,000,000 square miles (excluding Alaska). Some are gathered in the large cities, where millions jostle elbows. Some are scattered over great areas with considerable distances between them and their neighbors. Some daily pass hundreds of retail stores; some must ride miles to reach the nearest store. Wide extremes in purchasing power exist. Millions have a purchasing power scarcely sufficient to obtain for themselves the barest necessities of life. A few can satisfy the most extravagant whims of the human imagination. Between these extremes lie all degrees of purchasing power, the number in each class becoming greater as you descend in the scale of purchasing power.

Their wants are as varied as their purchasing power. Environment, education, social custom, individual habits, and all the variations in body and mind tend to render human wants diverse. In each individual there are certain conscious needs being constantly gratified by the purchase of goods produced for such gratification. Then there are the conscious needs which go ungratified because of the limitations upon purchasing power and the existence of other needs of greater felt importance. And then there are the unformulated, subconscious needs which fail of expression because the individual is ignorant of the existence of goods which would gratify them.

The business man must first realize the intricacy of the problems he has to solve. He must analyze his market. The market splits up into economic and social strata, as well as into geographic sections.

The distributer cannot disregard the geographic distribution of the consuming public. He may be able to sell profitably by salesmen where the population is dense, while such method of sale would be unprofitable in a region where there is a sparse population. If he bases a judgment upon the average cost of selling by salesmen for the whole market, he may well go wrong, since the average might show that the use of such an agency was on the whole profitable, while yet in some sections entering into the average the use of salesmen was actually unprofitable. Again, it might be economical for the distributer to establish his own branch stores in the denser urban centers, while in the sparsely populated regions he could most profitably distribute his product through the regular channels.

If, then, a sound system of distribution is to be established, the business man must realize that each distinct geographic section is a separate problem. The whole market breaks up into differing regions.

Equally important is a realization of what may be termed the market contour. The market, for the purposes of the distributer, is not a level plain. The distributer of a staple hat at $3.00 appeals to different economic and social strata, faces different considerations, and finds different selling methods necessary, as compared with distributers selling a $5.00 trade-marked hat, or those distributers selling $4.00 or $6.00 trade-marked hats. Differences in economic and social strata to be reached are as important as differences in geographic location and density, if a sound system of distribution is to be worked out.

Take the distributer who seeks to map out a selling campaign for a Catholic publication. It is essential that he take into account not merely the geographic distribution of the Catholic population in the United States, the regions where it is relatively dense, and the regions where it constitutes a small element in the population, but also he must take into account the distribution of that population through the economic strata of society. A method of distribution successful in New Orleans, where the Catholic population is dense and spread through all economic strata of society, might well fail if applied in Maine, where the Catholic population is relatively sparse and found mostly in the lower economic strata.

A careful analysis of his market, then, by areas and by strata, is the first task of the modern distributer.

Nor does the merchant-producer ordinarily realize how intricate is his problem as to the agency or combination of agencies that will be most efficient in reaching his market. The business man often adopts one method and becomes an advocate of it, disregarding entirely other methods. While the method adopted may be more efficient than any other *single* method, it is apparent that a method which is relatively efficient in reaching one area may be inferior to another method in reaching another area. And so a system of distribution which has proven very effective in reaching one economic stratum may be relatively inefficient when employed to reach a different economic stratum in society.

The problem, then, of working out the most effective combination of agencies is a most complicated one. Each distinct area and economic stratum must be treated as a separate problem, and, moreover, the economic generalizations embodied in the law of diminishing returns must be taken into account in choosing that combination of selling agencies which will give, in the aggregate, the most efficient organization of the market.

95. MARKETING FARM PRODUCTS[1]

The simplest system of marketing is that in which a producer sells directly to the consumer or to unassociated consumers. There is a ring around each city and town in which may be found agricultural producers who come directly into contact with consumers in the sale of products. The producer delivers in his own wagon.

If there were co-operative associations of consumers in cities and towns the delivery by the farmer directly to them would be more simple than his present deliveries to consumers individually.

TRAVELING BUYERS

Distribution of farm products between producer and consumer has many variations of system.

Selling to buyers who come to the farm is practiced in some degree in many parts of the United States. Traveling hucksters in many regions go from farm to farm gathering eggs, butter, poultry, calves, and similar commodities, which they sell to shippers, jobbers, or retail dealers. Agents of large merchants go to farms on the Pacific coast to buy hops, to ranges in the Rocky Mountains for wool, to plantations in Louisiana and southeastern Texas to bargain for rice, and to the orchards of the apple-producing states east of the Rocky Mountains. The cattle buyer also is a frequent visitor at many farms, especially where stock raising is a secondary industry.

GENERAL MERCHANTS

One of the most important persons in the distribution of some products is the merchant of the town or the rural community. He is often the first receiver of such products as eggs, farm-made butter, poultry, wool, hides, and sometimes cotton, grain, and hay. It is the custom, less so than formerly, for a local merchant to credit a planter of cotton or rice, or his tenants, with supplies for a crop year, and to take a lien upon a growing crop to cover the value of the merchandise thus sold. In such a case it is frequently the practice that the crop, when ready for market, is turned over to the merchant by the planter or tenant, who receives the difference between his debt and the proceeds from the crop. The importance of the country merchant as a distributing factor in some regions is diminishing, for he has been supplanted to a greater or less degree by dealers in special products.

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[1] Adapted from U.S. Department of Agriculture, Report No. 98, *Systems of Marketing Farm Products and Demand for Such Products at Trade Centers* (1913), pp. 10–14.

LOCAL BUYERS OF SPECIAL PRODUCTS

In the regions where grain is the staple product the tendency has been for the storekeeper to be displaced by the grain dealer and the local elevator man. Among other examples of local buyers of special produce are the California fruit packer, who buys from growers; the egg and poultry shipper in the Middle West, whose purchases are made from country merchants and who ships by carload lots to wholesale dealers; the San Francisco (Cal.) wool merchant, who buys on the range and sells in the East; the poultry packer in the North Central states, who buys live fowls, slaughters them, and consigns to eastern cities; and the "track buyers" of watermelons in the region near San Antonio, Tex., of peaches in Georgia, and of hogs in the corn belt.

COMMISSION DEALERS

The individual farmer who ships his products by rail or water to a market and does not sell directly to consumers must sell through, or to, middlemen. They commonly sell through commission merchants, but to some extent sell directly to wholesale dealers, and, also, to retail dealers. The results to the farmer of selling through middlemen are both good and bad.

The commission dealer is the agent through whom a large amount of produce is sold for farmers or country shippers. He usually represents the seller, but there are instances where he serves as agent of the buyer, as in some sales of live stock to distant buyers or in the purchase of Pacific coast hops for eastern dealers.

In addition to serving as agent in making a sale, a commission man may advance money to a producer or to a country buyer, as when a live-stock commission firm loans money to feeders or when a grain-commission firm supplies a local grain dealer with sufficient cash to begin his season's purchases. Another phase of commission dealing is that engaged in by rice and cotton factors, who advance money on crop liens, and to whom these products are frequently consigned to be sold on commission. In some states, for instance, in South Carolina, banks are reported to be taking the place of the cotton factor in making loans, and the presence of buyers and neighboring mills enables planters sometimes to market their cotton without the aid of factors. Another class of factors are those in the Baltimore tobacco trade, who receive consignments, for instance, from farmers in Maryland and Ohio, and who sell to exporters.

DIRECT SALES WITHOUT AID OF MIDDLEMEN

Common instances of the producer's selling direct and delivering to the door of the consumer occur in the marketing of milk, butter, eggs, poultry, fruits, vegetables, hay, and other farm products. Milk producers in the neighborhood of Erie, Pa., through their organization, deliver milk direct to consumers. Numerous poultry raisers sell exhibition stock direct to other poultry raisers. Eggs for hatching are also sold in this way. Registered cattle are often sold at auctions, held periodically by the owners. Retail sales of fruit, vegetables, poultry, eggs, and dairy products direct by producers to consumer are made also in public market places.

In a sense, a mill or a factory may be regarded as a consumer. An old instance of the producer's selling in wholesale lots direct to the consumer is that of the farmer taking his grain to a near-by mill. A sale of sugar beets to a neighboring factory is another example of direct bargaining between producer and consumer; so is the sale and delivery of milk to a creamery, apples to an evaporating establishment, and fruits and vegetables to neighboring canning houses.

TRANSFER THROUGH ONE MIDDLEMAN

A large number of transactions are made in which only one middleman assists in the transfer from producer to consumer. A common example is that of a town merchant who buys produce from farmers and sells it to consumers.

Among the other instances of a single middleman intervening between producer and consumer may be noted the commission man at a large market who receives consignments of live stock from farmers and sells to packers; the factors to whom the planter consigns his rice or cotton and from whom purchases are often made by millers; the warehouseman who manages the sale of a Virginia planter's tobacco; and the "line" or system of elevators which buys grain from farmers and sells to millers. Pennsylvania tobacco is often bought at the farm by a dealer who sells to manufacturers.

It is common practice in a number of cities—for instance, New York, N.Y., Philadelphia, Pa., and Washington, D.C.—for milk to be handled by one middleman, namely, the city retailer, who buys direct from the producer. A considerable part of the supply of New

York City is delivered at country shipping points to stations or "creameries" owned by New York dealers who sell in the city at retail.

An organization which brings the grain producer nearer the great mills is the farmers' elevator. The plan of its operation has some features similar to that of the wool warehouses of Chicago and Omaha. Farmers co-operate in building an elevator and in employing a manager.

MARKETING THROUGH TWO MIDDLEMEN

The intervention of two middlemen between producer and consumer is a common occurrence. The farmer may consign to a distant commission man or sell to a local dealer, and the next transaction of the series may be the sale to a retail merchant whose customers are consumers. A common way of marketing live stock is for the farmer to sell to a buyer who ships to a commission merchant at a large packing center, where the animals are sold frequently to packers. Fruits and vegetables are marketed often through the aid of two middlemen, the city commission dealer and the retail merchant. Two middlemen are involved also in some sales of produce made by farmers' co-operative societies; the first, unless the sales-manager of a society be classed as a middleman, being the wholesale or the commission dealer, and the second the retail merchant.

TRANSACTIONS INVOLVING THREE OR MORE MIDDLEMEN

A series of three middlemen may include, first, the local buyer or shipper; second, the commission dealer or the wholesale merchant; and third, the retail merchant. Watermelons from the region of San Antonio, Tex., are reported to be distributed in considerable quantities through such a series of dealers. Traveling hucksters in Missouri buy poultry from farmers and sell occasionally to merchants or to commission firms, who in turn include among their customers some retail dealers. Apple dealers in this country purchase the fruit from growers and sell to United States agents of German importers. The third in this series of middlemen is the retail dealer in Germany.

In the sale of fruit by auction, as is common in large cities east of the Mississippi River, the auctioneer is an additional middleman. He may sell for a commission dealer to whom the consignment may have been made by a country buyer; and the purchaser at such an auction may be a jobber, who in turn sells to a retail merchant. Five middlemen are thus concerned in such a transaction.

96. RETAIL DISTRIBUTION OF FARM MACHINERY[1]

Over 95 per cent of all the farm machinery used in the country is purchased from the local implement dealer. The system of direct selling by the manufacturer to the farmer has not been extensively developed in this branch of industry.

When factories first began to take over the work of the local blacksmith and wagon-maker in supplying the needs of the farmer, it became necessary to establish agencies with local storekeepers. As retail trade became differentiated, implements and hardware were commonly sold by the same dealer, and indeed still are in some parts of the country. Later, as implements increased in variety and the trade became further developed, in many sections the handling of farm machinery grew into a distinct business. These dealers generally took up also the sale of wagons and other vehicles used by the farmer, and are therefore usually referred to as implement and vehicle dealers. From the beginning the dealer was an active force in pushing the sale of machines; he provided space for the storage and exhibition of machines; he showed farmers how machines should be operated; and he was able to furnish information to the manufacturer as to the reliability of prospective customers among the farmers in his vicinity.

The terms of the agreement under which the dealer handles the products of the manufacturer of farm machinery are usually defined in a printed contract furnished by the manufacturer. This agreement names the conditions under which the dealer undertakes to handle the goods and under which the manufacturer agrees to furnish them It enumerates the kind or kinds of machinery to be handled and provides for prices, terms of payment, discounts, point from which dealer is to pay freight, and such other matters as may be considered necessary under the particular form of contract employed. Sometimes it also specifies the quantity of machines to be purchased, but frequently leaves this to be determined later. Such contracts are usually referred to as agency contracts, although in form they may be either commission contracts or contracts of sale. Under the former the dealer is nominally the commission agent of the manufacturer, title to the goods or to the proceeds remaining in the latter until settlement, the dealer receiving the difference between the wholesale price of the manufacturer and the price paid by the retail purchaser as his commission or compensation. Under the sale contract the dealer buys the goods outright and becomes responsible for payment, although many contracts of this sort contain provisions intended to protect the manufacturer in case the dealer is threatened with insolvency. Some manufacturers use both kinds of contract with various modifications in particular terms.

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[1] Adapted from the *Report of the United States Commissioner of Corporations on the International Harvester Co.* (1913), pp. 291–94.

The period of time usually covered by these contracts is one year. The contract is submitted by the manufacturer's salesmen to the dealer before the opening of the season which it covers, usually the fall before, or at some other time before the business of the new season is under way. It is customary for the contract to contain a clause providing that after it has been signed by the dealer and the manufacturer's representative it must be approved by the general agent or some representative of corresponding responsibility before it becomes binding on the manufacturer.

The investment of the dealer, which is chiefly in his stock, varies somewhat according to the form of contract he has. His success under ordinary conditions, like that of other merchants, depends upon his ability to gauge the market demand for the goods and his skill as a salesman. From time to time he is visited by the manufacturer's salesmen soliciting orders under the contract. Except in harvesting machinery most manufacturers leave the work of soliciting farmers' orders to the dealer and his employees, so that the number of machines that the dealer sells to farmers and the prices received usually depend upon his own efforts.

Generally speaking, the dealer does not contract to handle more than one or two makes or brands of any particular kind of machine, and often is not allowed to by the manufacturer whose goods he sells. After selling the machines of a particular make for several years he may work up a custom closely connected with that brand of goods.

At most towns there are only two or three implement dealers. This fact, taken in connection with the fact that few dealers handle more than one or two makes of any one kind of machine, presents a very serious problem to manufacturers of lines in which there exist a considerable number of competing factories. With a limited number of implement dealers in any particular locality it is clear that in some towns some manufacturers cannot secure the services of a dealer with an established trade. The difficulty of securing satisfactory dealers at such points is often so great that some concerns contract with dealers whom other concerns consider unsuitable credit risks.

Even this method of securing representation is not free from difficulties; for the dealers themselves are organized into local, state and national associations the chief purpose of which is to protect the trade of the retail dealer against any tendency on the part of manufacturers or jobbers to sell direct to farmers, or to so-called "irregular" dealers. It is, therefore, a great advantage in several ways for the manufacturers to contract with dealers having an established trade.

In a few sections these conditions, among others, have led some makers of farm machinery to establish their own retail stores, but this method has not assumed any special importance as a means of reaching the farmer. A few manufacturers sell their products by the mail-order method, either directly or through established mail-order houses.

The retail distribution of harvesting machines, however, developed certain peculiar characteristics. From the time that they began to be sold it was the common practice for the local blacksmith or storekeeper to agree with the manufacturer to handle such machines on a consignment basis, receiving as compensation a part of the retail price which was generally fixed by the manufacturer. To some extent this was true of various branches of the implement trade, but it was an especially prominent feature in the case of harvesting machines. This system of selling on a commission contract was due to the high prices of harvesting machines for which neither the farmers nor the dealers were generally able to pay in cash. For this reason the manufacturer in settlement with the dealer agreed to accept farmers' notes, generally drawn to cover payments in two or three annual installments. In this manner the farmer was enabled to pay for a machine from the proceeds of the crops harvested with it. While this placed a financial burden on the manufacturer by increasing the capital he required, it also became a source of additional profit, since credit or long-time sales to farmers were at higher prices and the notes often bore interest both before and after maturity, and frequently at a high rate. Dealers of greater financial strength sometimes paid cash or settled for the machines with their own notes.

The collection of great numbers of such notes required a special organization and large expense; the discounting of such notes apparently was not widely practiced. The harvester trade, therefore, early required the investment of considerable capital in the form of notes and accounts receivable.

The use of a large amount of capital was also necessary by reason of other expenses peculiar to this branch of the implement industry.

To work in connection with the local dealers a great many salesmen or "canvassers" were introduced. The canvasser was the local representative of a particular manufacturer, and not, like the local dealer interested in the sale of goods of various makers; consequently he was a more persistent force in pushing the sales of his particular line among farmers. Another expense was that for the services of the so-called "expert." Since machines were shipped to dealers in parts, or in a "knocked down" condition, the several parts had to be assembled properly. Mechanical difficulties in setting up and operating the machines were adjusted by the expert. This was an expense that manufacturers of most other kinds of farm machinery did not have to meet.

These special characteristics of the trade gave rise to some differences in the relations between dealers and manufacturers of harvesting machinery, as distinguished from those existing between dealers and manufacturers of other lines, such as plows, tillage implements, farm wagons, etc. In the first place, the dealer's contract for harvesting machinery was a commission or consignment contract; the contract with other manufacturers was more frequently a contract of purchase under which the dealer bought his goods and paid for them. Then, too, manufacturers of other lines than harvesting machines did not usually employ canvassers; consequently they did not come so closely in touch with the farmer, nor did they have so intimate a knowledge of the business of individual dealers. Furthermore, they generally sold to the dealer for cash or on relatively short terms, while harvesting-machine manufacturers gave long credits.

97. THE DISTRIBUTING SYSTEM OF THE INTERNATIONAL HARVESTER COMPANY[1]

The distributing system of the International Harvester Co. is centered in the International Harvester Co. of America, which buys the machines and other products of the International Harvester Co. and also some outside goods. The America company sells principally to dealers who in turn sell to farmers.

The sales organization of the America company is under the supervision of a general sales manager at Chicago. Under him are a domestic sales manager in charge of selling operations in the United States and Canada, and a foreign sales manager in charge of selling operations in other parts of the world.

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[1] Adapted from the *Report of the United States Commissioner of Corporations on the International Harvester Co.* (1913), pp. 295–96, 31.

The United States is divided by the company into five sales districts called, respectively, the Eastern, Southern, Central, Northwestern, and Southwestern districts, each of which is in immediate charge of a district sales manager with headquarters at Chicago. Each sales district is divided into general agencies, of which there are about 90 in the United States. In charge of each general agency is a general agent, who directs the traveling men and office employees of the general agency, approves contracts made with the local dealers, and has general supervision of the company's business in the group of counties assigned to his general agency. His territory is divided into "blocks" of one or more counties.

In each "block" a traveling man, known as a blockman, has immediate supervision over the trade with dealers. Through him the dealer comes in personal contact with the company in making his contract of agency and in ordering goods from the company. The blockman keeps constantly in touch with the needs, financial condition, etc., of dealers, and the extent to which competing goods are handled in his territory.

The company employs about 700 blockmen. While the travelers for most other concerns ordinarily get around to a particular town only once or twice a year, blockmen of the International Harvester Co. as a rule return to each dealer several times during a season. To accomplish this each blockman is given a comparatively small territory to cover.

Canvassers are also employed by the company to assist the blockmen and to aid the dealer in soliciting orders for International Harvester Co. machines and other products among the neighboring farmers. A large proportion of the farmers in the United States are visited several times a year by one or more of these canvassers, who report the farmer's prospective needs to the company. The company also employs experts (though not so many as formerly) to aid in setting up and starting machines and to adjust difficulties that may develop in their use. A separate force is employed for the collection of accounts, and branch offices or agencies for collection are established at various points in the United States.

[The report continues with a discussion of what it calls the objectionable competitive methods of the International Harvester Co., listing the following as the chief of these methods.]

(1) Maintenance of bogus independent companies in the early years of the company's operation.

(2) Attempts to force dealers carrying its harvesting machines into carrying additional lines or certain International lines exclusively. At an earlier date the contracts of the Harvester company contained an exclusive clause for harvesting machines.

(3) Efforts to secure an undue proportion of desirable dealers in a given town by giving only one of its several brands of harvesting machines to a dealer, thus tending to restrict the outlet for competitive goods.

(4) Use of "suggested price" lists, tending to influence the final retail price; earlier the contracts themselves provided for fixing of retail prices by the company.

(5) Occasional discrimination in prices and terms.

(6) Misrepresentations by salesmen regarding competitors.

98. CO-OPERATIVE FRUIT MARKETING[1]

The California orange and lemon crop equals 50,000 carloads, or about 20,000,000 boxes. There are between 10,000 and 12,000 growers engaged in the culture of the fruit. Four-fifths of the growers are organized into co-operative associations, more than 60 per cent of which are federated into the California Fruit Growers' Exchange.

The California Fruit Growers' Exchange is an organization which acts as a clearing house in providing the facilities through which 6,500 growers distribute and market their fruit. There are three foundation stones in the exchange systems—the local associations of growers, the district exchanges, and the central exchange. The local associations, the district exchanges, and the central or California Fruit Growers' Exchange are organized and managed by the growers on a nonprofit co-operative basis, each of them operating at cost, and each distributing the entire net proceeds to the growers after operating expenses are deducted.

The Local Exchange.—The California Fruit Growers' Exchange comprises 115 local associations, each of which has from 40 to 200 members. The growers usually organize as a corporation without profit, under the laws of California, issuing stock to each member in proportion to his bearing acreage, to the number of boxes he ships, or in equal amounts to each grower. The association assembles the fruit in a packing house, and there grades, pools, packs, and prepares it for shipment. The associations are managed by a board of directors through a manager and are conducted exclusively for the benefit of the growers. They declare no dividends and accumulate no profits. The fruit is pooled each month, or in a shorter or longer period, each grower receiving his proportion of the proceeds received for each grade shipped during the pool. Many of the associations pick the fruit, and some of them prune and fumigate the trees for the members. Each association has brands for each grade, and when a carload is ready for shipment it is marketed through the district exchange, of which the association is a member, through the agents and facilities provided by the California Fruit Growers' Exchange.

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[1] From U.S. Department of Agriculture, Report No. 98, *Systems of Marketing Farm Products and Demand for Such Products at Trade Centers* (1913), pp. 169–71

The District Exchange.—There are 17 district exchanges. These exchanges are corporations without profit. There may be one or more district exchanges in a community, depending upon the number of local associations and other local conditions. The district exchange acts as a clearing house in marketing the fruit for the associations through the California Fruit Growers' Exchange and acts as a medium through which most of the business relations between the exchange and the local associations are handled. The district exchange orders cars and sees that they are placed by the railroad at the various association packing houses; keeps a record of the cars shipped by each association, with their destinations; informs itself, through the California Fruit Growers' Exchange, of all phases of the citrus marketing business; places the information before the associations; receives the returns for the fruit through the central exchange and returns the proceeds to the associations.

The Central Exchange.—The California Fruit Growers' Exchange is a nonprofit corporation under the laws of California. It is formed by 17 district exchanges, with a paid-in capital stock of $17,000. It is managed by a board of 17 directors through a general manager, one director representing each district exchange. The function of the California Fruit Growers' Exchange is to furnish marketing facilities for the district exchanges at a pro rata share of the cost. The exchange places bonded agents in the principal markets of the United States and Canada, defines the duties of the agents, and exercises supervision over them. It gathers information through them of conditions in each market, receives telegraphic advices of the sale of each car and furnishes the information every day in bulletin form to the local associations. The exchange business is on a cash basis; it makes prompt accounting of returns to the growers through the district exchanges; it takes care of litigation that arises in connection with the marketing of the fruit; handles all claims; conducts an extensive advertising campaign to increase the demand for citrus fruit; develops new markets, and performs such other functions as are set forth in the contract between the central exchange and the district exchanges. The central exchange levies an assessment against each district exchange for a pro rata share of the expense on the basis of the number of boxes shipped. It declares no dividends. It does not buy or sell fruit or any other commodity, and exercises no control either directly or indirectly over sale or purchase. Its function is to provide facilities for the distribution and marketing of the fruit for those shippers who desire such facilities. Under the exchange system every shipper reserves the right to regulate and control his own shipments; to develop his own brands of fruit; to use his own judgment as to when and in what amount it shall be shipped, to what markets it shall be shipped, and the price he is willing to receive, reserving the right of free competition with all other shippers, including the members of the same organization, uncontrolled by any one. The agent in the market acts directly under the order of the shipper, who determines the prices at which each car shall be sold outside of the auction markets, and all other matters connected with its distribution, the California Fruit Growers' Exchange acting as the medium through which orders pass from the agent to the shipper, but never selling a car or determining the price at which the fruit shall be sold.

The exchange is a democratic organization; the growers exercise control over all matters. Membership in the exchange is voluntary; a grower may withdraw from an association at the end of a year; an association may withdraw from a district exchange, and a district exchange may withdraw from the central exchange; these relations being set forth in the various contracts that hold the members together. There is no attempt on the part of the central exchange to regulate shipments, to eliminate competition, divide the territory or business or to influence prices. In this connection its functions are to keep the associations informed daily regarding the shipments from the state; the general movement of exchange cars, the general conditions of the different marketing points; the prices at which the exchange fruit is sold; and in furnishing such other information as will allow the growers and shippers through their association and district exchanges to decide the questions of distribution and marketing for themselves.

One-third of the entire shipments are sold at public auction, the remainder through unrestricted private competition. There is no uniformity in price in the different brands, because the fruit in each section, on account of soil and other local differences, has an individuality of its own, and every brand sells on its own merits.

The exchange is organized into several divisions: sales, legal, traffic, advertising, insurance, and mutual protection, and a supply department which furnishes the materials used in the packing houses and on the ranches at cost to the members. The exchange does not consign fruit. It is shipped on order; sold f.o.b.; or sold "delivered, subject to usual terms." The exchange maintains district managers in all of the important cities of the United States and Canada. These employees are exclusively salaried agents engaged only in the sale of fruit, in the development of markets, and in handling the local business problems of the exchange.

99. ORGANIZED EXCHANGES: GRADING OF COMMODITIES

VARIATION IN THE QUALITY OF COTTON[1]

The cotton crop comprises a very wide range of quality. This is largely due to the peculiar nature of the plant, which, instead of maturing its product at practically one time, produces over a long period. Thus, of the cotton bolls of a single stalk, some may open, say, late in August or early in September, whereas others may not ripen for many weeks, or even several months, this depending largely upon the weather. Moreover, the gathering of the crop extends over a still longer period. In fact, the harvesting of the crop, which begins about August, is seldom really completed before February of the following year, although, of course, the great bulk of the crop is gathered long before this.

These factors have a very important bearing upon the quality of the crop. That portion of the crop which ripens first is ordinarily of a brighter color and much more free from dirt than that gathered toward the end of the season, when, owing to continued exposure to changes in the weather, such as frosts and storms, the cotton becomes more and more discolored and damaged. The grade of cotton is also affected by the method of gathering. Carelessness in picking, which results in getting an undue amount of stem and leaf into the staple, materially lowers the grade.

The grade of cotton, as recognized by cotton exchanges, is, in the main, determined by the degree of color and the amount of foreign

[1] Adapted from the *Report of the United States Commissioner of Corporations on Cotton Exchanges*, Part I (1908), pp. 62–73.

matter, such as leaf and dirt, which it contains. The length of the staple, although an extremely important matter in determining the spinning value of cotton, is a distinct consideration, which is not regularly taken account of in official classifications. The strength of staple is also largely disregarded in official classifications. There is, of course, a general relationship between grade and spinning value.

COTTON REQUIRED BY MANUFACTURERS[1]

Each manufacturer requires a certain grade and type of cotton to produce his particular class of goods. When a manufacturer makes a small range in numbers of yarn, or is confined to one or two different grades of fabrics, only one grade of cotton will be needed. When, however, a manufacturer makes a wide range of yarns and fabrics, different grades of cotton are frequently used. In the first case it will be necessary for the manufacturer to have as nearly as possible even-running bales. A mixture of cotton—that is, to mix the longer with the shorter staple—would cause considerable trouble. Any mixing of long and short staple would mean a loss of production with an additional amount of waste in the making of yarns. This occurs in mills where the mixing of cotton does not receive the particular attention which should be given it. Inability to mix and successfully spin cotton of different grades and lengths is due to the fact that the rolls in the different machines which have to draw out the cotton into thread travel at different speeds, the back roll traveling slower than the front roll. These rolls are also set a certain distance apart, according to the length of the staple. If the rolls should be set to spin 1-inch cotton and 1¼-inch should be used, the rolls would break the fibers, and this would have a bad effect in the making of yarn. On the other hand, if the rolls should be set for 1¼-inch and seven-eighth or 1-inch cotton should be used, many fibers would drop between the rolls and in this way there would be much waste and loss. Where the manufacturer makes a wide range of yarns and fabrics, such a mixing of cottons of extreme different lengths is almost unheard of. Therefore, should the manufacturer get different grades in any lot of cotton, the bales would be separated according to grade, and used according to the staple required for a certain yarn or fabric.

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[1] From John M. Carson, *Packing and Marketing of Cotton*, United States Department of Commerce and Labor, Bureau of Manufacture, Special Agents Series, No. 58, 1912, p. 39.

THE BASIS CONTRACT

A vitally important characteristic of future contracts in cotton is that they are "basis" contracts; that is, they do not call for the delivery of a specific grade of cotton, but allow the seller the option of delivering any grade or a number of grades within certain wide limits. The buyer has no option in this respect. He must receive any deliverable grade or grades tendered by the seller. "Middling" cotton is always the basis grade and can be delivered on contract at exactly the contract price. Other grades are delivered at prices relative to middling—or, to use the trade expression, at certain "differences" in price "on" (i.e., over) or "off" (i.e., under) middling. Thus, if an operator sells a future contract on an exchange at 10 cents, he can deliver middling cotton thereon at exactly the contract price; or, if he prefers, he can deliver a higher grade of cotton, like "good middling," in which case the buyer must pay, in addition to the basis price of 10 cents, a difference of, say, one-half cent "on" that price, making 10½ cents. On the other hand, if the seller prefers to deliver a lower grade, like, say, "low middling," the buyer must take it, but is allowed a deduction or difference "off" the contract price, and pays, say, 9½ cents. In the same way the seller may deliver both high grades and low grades on a single contract.

Broadly speaking, cotton delivered on contract consists of the surplus grades or remnants of the more desirable grades. Even-running cotton—that is, cotton of substantially one grade—can ordinarily be sold to spinners at a premium above the price of a mixed assortment of grades; consequently, buyers will not pay as much for a mixed assortment of cotton as for even-running cotton. The spot merchant therefore endeavors to class out his cotton into even-running lots and to dispose of it in the spot market instead of tendering it on contract, using the contract market to get rid of surplus grades or broken lots, known in the trade as "overs." For these reasons a mixed assortment of grades is often delivered on a single contract.[1]

Prior to the enactment of the United States Cotton Futures Act, which went into operation February 18, 1915, the form of contract used by the New York Cotton Exchange had been faulty in two particulars: it permitted delivery of cotton that the buyer could not use—which, though "merchantable" was not available for mill requirements; and, secondly, it sanctioned a method for arriving at the differences in the value of the various grades which was arbitrary, uncommercial, and palpably unfair. The combination of these two features of the contract made operations on the New York Exchange objectionable and very properly called forth a widespread demand for reform. Inasmuch as the buyer of a contract must accept whatever cotton the seller chooses to deliver to him it is evident why spinners found it undesirable and hazardous to buy cotton on the exchange; they did not want to place themselves in a position where they would be obliged to accept cotton of various grades, including exceptionally low ones, many of which they could not possibly utilize in the manufacture of cotton goods. Moreover, under the old system, the seller in giving notice of delivery, did not inform the buyer of the grades of cotton he expected to deliver.

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[1] From the *Report of the United States Commissioner of Corporations on Cotton Exchanges*, Part I (1908), pp. 2, 3.

The United States Cotton Futures act has done away with the abuses that had previously existed by compelling, first, the adoption of a uniform set of standard grades, secondly, the exclusion from deliveries of cotton of inferior quality and of very short staple, and thirdly, the adjustment of differences in value of the various grades in a commercial way by requiring that the figures be based on prices actually paid for the different grades at the several cotton markets of the country.[1]

RULES GOVERNING INSPECTION OF CORN IN ILLINOIS[2]

The following maximum limits shall govern all inspection and grading of corn:

GRADE CLASSIFICATION	MAXIMUM PERCENTAGES OF			
White, Yellow, and Mixed Corn	Moisture	Damaged Corn	Foreign Material, Including Dirt, Cob, Other Grains, Finely Broken Corn, Etc.	"Cracked" Corn, Not Including Finely Broken Corn (See General Rule 9)
No. 1	14.0	2*	1	2
No. 2	15.5	4*	1	3
No. 3	17.5	6*	2	4
No. 4	19.5	8†	2	4
No. 5	21.5	10†	3	5
No. 6	23.0	15§	5	7
"Sample"	See General Rule No. 6 for Sample Grade			

* Exclusive of heat damaged or mahogany kernels.

† May include heat damaged or mahogany kernels not to exceed ½ per cent.

‡ May include heat damaged or mahogany kernels not to exceed 1 per cent.

§ May include heat damaged or mahogany kernels not to exceed 3 per cent.

[1] Adapted from I. Newton Hoffmann, "The Cotton Futures Act," *Journal of Political Economy*, XXIII, 469–70, 481.

[2] From the annual report of the Board of Trade, Chicago, 1914, pp. 30–31.

GENERAL RULES

1. Corn in Grades No. 1 to No. 5, inclusive, must be sweet.

2. White corn, all grades, shall be at least 98 per cent white.

3. Yellow corn, all grades, shall be at least 95 per cent yellow.

4. Mixed corn, all grades, shall include corn of various colors not coming within the limits for color as provided for under white or yellow corn.

5. In addition to the various limits indicated, No. 6 corn may be musty, sour, and may also include corn of inferior quality, such as immature and badly blistered.

6. All corn that does not meet the requirements of either of the six numerical grades by reason of an excessive percentage of moisture, damaged kernels, foreign matter or "cracked" corn; or corn that is hot, heat damaged, fire burnt, infested with live weevil, or otherwise of distinctly low quality, shall be classed as sample grade.

7. In No. 6 and sample grade, reasons for so grading shall be stated on the inspector's certificate.

8. Finely broken corn shall include all broken particles of corn that will pass through a perforated metal sieve with round holes nine sixty-fourths of an inch in diameter.

9. "Cracked" corn shall include all coarsely broken pieces of kernels that will pass through perforated metal sieve with round holes one-quarter of an inch in diameter, except that the finely broken corn as provided for under Rule 8 shall not be considered as "cracked" corn.

10. It is understood that the damaged corn; the foreign material including pieces of cob, dirt, finely broken corn, other grains, etc., and the coarsely broken or "cracked" corn, as provided for under the various grades, shall be such as occur naturally in corn when handled under good commercial conditions.

11. Moisture percentages, as provided for in these grade specifications, shall conform to results obtained by the standard method and tester as described in Circular 72, Bureau of Plant Industry, U.S. Department of Agriculture.

100. ORGANIZED EXCHANGES: FUTURES, PUTS, AND CALLS[1]

A future contract in cotton may be defined as an agreement on the part of the seller to deliver, and of the buyer to receive, at some future date, a certain quantity of cotton (in the case of the New York and New Orleans cotton exchanges 50,000 pounds, or approximately 100 bales), the contract price being fixed at the time the contract is made. The seller, at the time he enters into the contract, may or may not have the cotton on hand; in the latter case he is "selling short," relying on his ability to secure cotton, or another contract representing cotton, prior to the maturity of the contract thus sold. A future transaction differs from a "spot" transaction in that the latter is made from goods on hand, or immediately available, and calls for practically immediate delivery. Future transactions may be made, and indeed are constantly made, by private agreement outside of exchanges. The organized development of such transactions by means of exchanges may, however, properly be termed the "future system."

Future contracts are often, though incorrectly, spoken of as synonymous with "options." There is a wide difference between the two. "Options," as the word implies, are mere privileges entitling one party, for a fixed consideration which is really nothing more than a forfeit, to call upon the other party for, or to deliver to him, a certain quantity of merchandise at a fixed price. The important distinction is that these are mere privileges which may or may not be exercised; whereas, in the case of a future contract, no such choice is allowed. An option which entitles the buyer to demand of the seller the delivery of a certain quantity of goods at a fixed price is known as a "call," while one which entitles him to deliver to the seller of the option such goods is known as a "put." Sometimes two options are combined in one, and the transaction is then usually spoken of as a "spread" or "straddle."[1]

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[1] Adapted from the *Report of the United States Commissioner of Corporations on Cotton Exchanges*, Part I (1908), pp. 1–2, 46–47.

[For other aspects of dealings on the exchanges see Selection 106: "Organized Speculation and Its Regulation," and Selection 228: "Hedging as an Insurance Against Risk."—EDITORS.]

A call may be described more concretely as follows: An operator, say, in the stock market, at a time when a certain stock is selling at par (100), believes that it is going much higher. Instead of buying the stock outright or on margin, he buys from a person having a considerable quantity of the stock the right to call upon that person for a certain number of shares within a fixed time, at a certain price above the market, say at 105. For this privilege he pays the other party, say, $2 per share. If, prior to the expiration of the time limit, the price has gone to 110, the buyer of the call may demand the delivery of the stipulated number of shares, which the seller must deliver at the stipulated price of 105. The buyer then sells out his stock at 110 and makes a profit of 5 points, less the 2 points he paid for his call and other expenses, such as commissions. On the other hand, if the price goes to 95 without recovery during the time limit, the buyer of the call will not demand delivery, since he would still have to pay the stipulated price of 105, but will allow his option to lapse, in which case, of course, he forfeits the price paid for his privilege.

A put is just the reverse of a call. For instance, an operator in the stock market, at a time when a given stock is selling at 100, believes that it will go to, say, 90. Instead of selling it short, in which case he would have to put up a considerable margin and run the risk of heavy loss in case the market advanced instead of declined, such an operator buys from another operator, who is not of the same mind, a put; that is, he buys the privilege or right to deliver to this second operator a given number of shares of this stock at, say, 98 at any time within a certain agreed period. For this privilege he may pay the seller of the put, say, $2 a share. If the stock goes to 90 within the time limit, the buyer of the put will buy the stipulated number of shares in the open market and deliver them to the seller of the put, who must take them at 98; the buyer of the put (who, it may be noted, is the deliverer of the actual stock) therefore makes 8 points on the transaction, less 2 points to cover the cost of his put and incidental expenses such as commissions. If, on the other hand, the stock advances above 100, the buyer of the put obviously will not exercise his privilege, but will simply forfeit the price which he paid for the put.

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[1] Such straddles should not be confused with straddles on regular future contracts.

The above description explains the theory of these operations. In actual practice the two parties to these options usually make a settlement without the actual transfer of the stock; that is to say, in the case of the call described, the buyer of the call, instead of actually demanding the stock from the seller at 105 when the market price reaches 110, simply receives from the seller of the call a payment of $5 a share, less the cost, without any actual transfer or resale of the stock. On the other hand, if the operator buying the call has sold stock short at 110, relying on his call to protect him, he may actually demand the stock and deliver it to the party to whom he has sold.[1]

The cost of such options varies, of course, with the conditions of the market and the views of the two parties concerned, but ordinarily the amount of money required to deal in options or privileges is relatively small as compared with that necessary to buy or sell the securities in question, even on a margin basis. These privileges, therefore, afford a means for speculating with the use of only a very small amount of capital. Furthermore, it is to be emphasized that it is optional with the buyer of such privilege whether he will exercise it or not. It is, therefore, apparent that, whatever their legal status, such privileges have much of the character of an ordinary wager.[2] Further discussion of the matter is unnecessary here, since the rules of both the New York Cotton Exchange and the New Orleans Cotton Exchange—the only exchanges in this country on which organized future business in cotton is conducted—expressly forbid dealings in such options or privileges; indeed, exchanges rather generally prohibit such transactions on their floors, whether in stocks or in commodities.

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[1] Calls are also used by short sellers, so that in case the market advances unexpectedly they can demand stock on such calls and limit loss on their short sales.

[2] It should be noted, however, that even in the case of these privileges there is a right to require or to make delivery of the actual product, in which respect they differ widely from a mere bet.

IX. VALUE

101. DEMAND AND GENERAL OVERPRODUCTION[1]

Because the phenomenon of over-supply, and consequent inconvenience or loss to the producer or dealer, may exist in the case of any one commodity whatever, many persons, including some distinguished political economists, have thought that it may exist with regard to all commodities; that there may be a general overproduction of wealth; a supply of commodities in the aggregate, surpassing the demand; and a consequent depressed condition of all classes of producers.

When these writers speak of the supply of commodities as outrunning the demand, it is not clear which of the two elements of demand they have in view—the desire to possess, or the means of purchase; whether their meaning is that there are, in such cases, more consumable products in existence than the public desires to consume, or merely more than it is able to pay for. In this uncertainty, it is necessary to examine both suppositions.

First, let us suppose that the quantity of commodities produced is not greater than the community would be glad to consume: Is it, in that case, possible that there should be a deficiency of demand for all commodities for want of the means of payment? Those who think so cannot have considered what it is which constitutes the means of payment for commodities. It is simply commodities. Each person's means of paying for the productions of other people consists of those which he himself possesses. All sellers are inevitably and *ex vi termini* buyers. Could we suddenly double the productive powers of the country, we should double the supply of commodities in every market; but we should, by the same stroke, double the purchasing power. Everybody would bring a double demand as well as supply—everybody would be able to buy twice as much, because every one would have twice as much to offer in exchange. It is probable, indeed, that there would now be a superfluity of certain things. Although the community would willingly double its aggregate consumption, it may already have as much as it desires of some commodities, and it may prefer to do more than double its consumption of others, or to exercise its increased purchasing power on some new thing. If so, the supply will adapt itself accordingly, and the values of things will continue to conform to their cost of production. At any rate, it is a sheer absurdity that all things should fall in value, and that all producers should, in consequence, be insufficiently remunerated. If values remain the same, what becomes of prices is immaterial, since the remuneration of producers does not depend on how much money, but on how much of consumable articles, they obtain for their goods. Besides, money is a commodity; and if all commodities are supposed to be doubled in quantity, we must suppose money to be doubled too, and then prices would no more fall than values would.

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[1] From John Stuart Mill, *Principles of Political Economy*, Book III, chap. xiv. [On the subject of demand see also the selections under the head of "Wants and the Means of Their Satisfaction."—EDITORS.]

A general over-supply, or excess of all commodities above the demand, so far as demand consists in means of payment, is thus shown to be an impossibility. But it may perhaps be supposed that it is not the ability to purchase, but the desire to possess, that falls short, and that the general produce of industry may be greater than the community desires to consume—the part, at least, of the community which has an equivalent to give. It is evident enough that produce makes a market for produce, and that there is wealth in the country with which to purchase all the wealth in the country; but those who have the means may not have the wants, and those who have the wants may be without the means. A portion, therefore, of the commodities produced may be unable to find a market from the absence of means in those who have the desire to consume, and the want of desire in those who have the means.

This is much the most plausible form of the doctrine, and does not, like that which we first examined, involve a contradiction. There may easily be a greater quantity of any particular commodity than is desired by those who have the ability to purchase, and it is abstractedly conceivable that this might be the case with all commodities. The error is in not perceiving that though all who have an equivalent to give *might* be fully provided with every consumable article which they desire, the fact that they go on adding to the production proves that this is not *actually* the case. Assume the most favorable hypothesis for the purpose, that of a limited community, every member of which possesses as much of necessaries and of all known luxuries as he desires; and since it is not conceivable that persons whose wants were completely satisfied would labor and economize to obtain what they did not desire, suppose that a foreigner arrives and produces an additional quantity of something of which there was already enough. Here, it will be said, is over-production—true, I reply; over-production of that particular article; the community wanted no more of that, but it wanted something. The old inhabitants, indeed, wanted nothing; but did not the foreigner himself want something? When he produced the superfluous article, was he laboring without a motive? He has produced, but the wrong thing instead of the right. He wanted, perhaps, food, and has produced watches, with which everybody was sufficiently supplied. The new comer brought with him into the country a demand for commodities, equal to all that he could produce by his industry, and it was his business to see that the supply he brought should be suitable to that demand. If he could not produce something capable of exciting a new want or desire in the community, for the satisfaction of which some one would grow more food and give it to him in exchange, he had the alternative of growing food for himself; either on fresh land, if there was any unoccupied, or as a tenant, or partner, or servant, of some former occupier, willing to be partially relieved from labor. He has produced a thing not wanted instead of what was wanted; and he himself, perhaps, is not the kind of producer who is wanted; but there is no over-production; production is not excessive, but merely ill assorted. We saw before, that whoever brings additional commodities to the market, brings an additional power of purchase; we now see that he brings also an additional desire to consume; since if he had not that desire, he would not have troubled himself to produce. Neither of the elements of demand, therefore, can be wanting, when there is an additional supply; though it is perfectly possible that the demand may be for one thing, and the supply may unfortunately consist of another.

102. ADVERTISING AND DEMAND[1]

Advertising may be said to build up three general classes of demand: (1) expressed conscious demand, (2) unexpressed conscious demand, and (3) subconscious demand.

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[1] From A. W. Shaw, "Some Problems in Market Distribution," *Quarterly Journal of Economics*, XXVI, 746 (August, 1912).

[For the more general discussion of market distribution by the same author see Selection 94.—EDITORS.]

The three classes may be illustrated by supposing a product for sale by grocers to be advertised in a periodical of large circulation by a double page costing for one insertion $8,000. If as a result of the advertisement 30,000 people go to the grocery and buy the product, 60,000 plan to purchase the product at some future time when such an article is needed, and 100,000 more become open to a further exciting force, such as seeing the product at the grocery and recognizing it as one advertised, then we should call the 30,000 the expressed conscious demand, the 60,000 the unexpressed conscious demand, and the 100,000 the subconscious demand resulting from the advertisement. Expressed conscious demand means present sales; unexpressed conscious demand means future sales; subconscious demand means that the field has been fertilized so that future selling efforts will be more fruitful. Unexpressed conscious demand and subconscious demand are difficult of measure but must always be taken into account in any consideration of the efficiency of advertising as a selling agency.

103. THE ABILITY OF THE CONSUMER TO DEFEND HIMSELF[1]

The consumer is the point of attack, either immediately or ultimately, in every advertising campaign for advertising goods finally sold at retail. And while we are discussing methods of attack, is it not well to take stock of the consumer's defense? What are the characteristics of the consumer as a class which meet, and, in a measure, offset advertising and selling betterments? Space will not let us catalogue more than a very few:

(1) The consumer's spending power is limited by his earning ability. He may develop, or have stirred in him, new wants, strong enough to make him work harder in order to earn more, but he cannot honestly spend more money than he earns, no matter how complicated his wants may become. This sets a final limit on consuming capacity, and sets a limit to the exercise of his will.

(2) The strength of the consumer's savings instinct determines the margin between his earning power and his willingness to spend. The strength of this instinct is only relative and here the consumer is vulnerable. His "will to save" is elastic.

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[1] From P. T. Cherington, *Advertising as a Business Force*, pp. 92–94, 116. Doubleday, Page & Co., 1913. (Copyrighted by the Associated Advertising Clubs of America.)

(3) The "standard of living," the opinion of the class to which the consumer belongs as to what may be expected of him in the spending of his income, has its constant effect on a civilized man's conduct, and this again is relative and open to attack.

(4) Price habits have tended to become fixed in many lines of retail business. The consumer has come to accept an increasing number of set prices, and set price intervals. There may be a few places in this country where a man expects to find a necktie line regularly carried at some price other than 50 cents or $1 or upward, but they are few. And so it is with suspenders, shirts, shoes, socks—almost everything a man wears—certain price habits have become well established. This puts competition in these lines on a basis of quality, or service. It makes purchase easy for the consumer, but it modifies the character of the advertising appeal, as we shall see.

(5) Buying habits are undergoing modification also. And these make another change in the advertiser's position. With price "higgling" partly eliminated, and the whole problem of appeal and sale based on quality and guaranteed satisfaction, the consumer has come to expect that goods can be bought without bargaining. The consumer certainly is safer in his purchasing, but equally certainly he is more careless.

(6) And again there is the effect of the multiplicity of appeals being made to the consumer. The individual consumer and the consumer as a class is appealed to from so many sides that the effect of no single appeal can be what it would if it stood alone.

To sum up these consumer defenses we find that, while the consumer, as an individual or as a class, may be led, stimulated, diverted, directed or otherwise influenced in buying, there are certain roughly ascertainable limits to the effects which may be expected to follow attacks on the will of the consumer. There are certain limits beyond which his earning power will not let him go, there are others, less certain, beyond which he will not buy unless his saving impulses are stifled, there are social and commercial habit barriers to consumer diversion, and last of all, the appeals to the consumer may partly neutralize each other by their mere multiplicity.

These few points, out of many which could be considered, have been presented in order to help us appreciate how much more than a mere market for goods is the modern consumer. As an object of advertising attack he is a complicated and variable composite under pressure from within and without. And there is scarcely an emotional motive, or an economic impulse with any influence on human action, which can be ignored with safety by the advertiser who wants to catch and hold him.

Nor is the consumer inert. He has powers of resistance, and he is learning how to use them. Even leaving the supremely important problems of consumer psychology out of consideration, he has means at hand for taking advantage of any weakness in advertising plans. The consumer problems of the modern advertiser are not merely to discover buyers of goods and to exploit them. They are as intricate as war plans.

104. SOME CASES OF DEMAND AND SUPPLY[1]

Reflecting the influence of a hot weather demand, the market for watermelons at Chicago yesterday displayed decided firmness and prices took an upward jump of $15 to $40 per car, selling up to $300. Receipts were only 11 cars, which found a ready outlet at the upturn.

More blackberries were on sale than on any previous day this year and prices took a sharp downward slump. Bakers, canners, and distillers were the principal buyers at $1.40 to $1.50 per case. Other berries held at former prices. Peaches were higher at $2.25 per bushel. Receipts were 7 cars and the demand was broad.

Constantinople advices said of attar of rose: "We are informed by our people in the interior that although the crop of flowers has been large in consequence of the propitious weather conditions, higher prices than last season have been paid for them. Besides this there are some other reasons increasing the cost of attar, principally the smaller yield and the increased wages and expenses. Notwithstanding the bad yield after distillation, we estimate that there will be a little more oil this year on account of the larger number of roses; yet it is too early to say anything definite on the subject."

Corn furnished considerable excitement in the grain markets yesterday, advancing 1⅞c. to 2½c., with active and excited trading. The weather map was responsible for the initial impulse, as it showed higher temperatures in the southwestern part of the belt and an absence of rainfall and predictions of a continuance of these conditions.

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[1] From daily newspapers.

It also furnished an excellent opportunity for the crop experts to get in their fine work, and reports of damage were more or less sensational all day. A statement issued by B. W. Snow said that his returns to date, covering almost half of the corn-producing counties, were showing sensationally on corn prospects. The worst damage was in Kansas, showing a drop of almost 50 points since July 1, with the later reports making it even worse. Nebraska has declined 20 points and Oklahoma 40, and Missouri 10 points, with practically every state in the Middle West or Southwest showing a decline. This would make the general average below 80 and would carry the total crop to 2,700,000,000 bushels, or a loss of 200,000,000 bushels since the first of July. This was a fair sample of the reports coming in, resulting in a stampede of shorts. Some crop experts, however, were inclined to take the other view. O. K. Lyle, in a dispatch from Springfield, Mo., reported that state as about normal, with some betterment following the rains of last week. Practically all the offerings of corn were absorbed through the commission houses and some of the big speculators were declared to have put out new long lines.

Oats felt the effect of the advance in corn and there were predictions that December would sell at 50c. a bushel at Chicago. Nevertheless, the Iowa weather bulletin reported that late oats are turning out better than expected. There was considerable buying in sympathy with corn, and there were further estimates that the crop would be under a billion bushels. Prices were ¾c. to 1c. higher at the close.

Wheat was decidedly in the background as a speculative proposition, but closed about ⅝c. higher owing to the strength in the coarse grains. There was considerable buying, particularly in the Northwest, as a result of the sensational news regarding corn. The opening was weaker, owing to the lower cables and favorable reports relating to wheat. Receipts were again heavy and export demand was lacking. The arrivals at Chicago yesterday were 1,042 cars. Bradstreet's visible supply showed an increase of 4,316,000 bushels.

The evidence that is coming to hand from one quarter and another tends to show that the earlier reports of dulness in the anthracite trade, the immense stocks of left-over coal in the hands of dealers, and the reluctance of the retail trade to buy at the spring discount have been somewhat overdrawn. It is true that orders are coming in slower than usual, but this is less important than might appear at first glance when it is remembered that the producers are generally heavily oversold in April and have to carry over many orders into May.

As a matter of fact, coal has been coming to this market in such limited quantities since the first of the month that, instead of being troubled with a surplus, most shippers are behind on their orders.

For one thing the weather this month has helped the retailers in moving stock carried over from winter. Probably more coal was used for heating during the first half of April than in the last half of March, or in any two weeks of March for that matter. Bare spots are beginning to show in a good many retail plants that apparently had enough coal on hand at the first of the month to last until May. Some dealers who deferred ordering because they were not quite ready to take in the tonnage, but at the same time would like to get some coal shipped at the April discount, are now sending in their orders. New England buyers are reported to be more backward than those in the vicinity of New York.

It is quite the usual thing for a little flurry to develop as the end of a spring or summer month approaches, and perhaps the shippers will go into May with more orders on their books than seemed likely a short time ago. At any rate the April output will be taken care of in good shape, and little is heard now of individuals shading the circular.

Conditions in the spot bituminous market seem to have improved somewhat in the past week. Not only is there a slightly better inquiry from buyers who have been slow in renewing contracts but there appears to be less cheap coal pressing for sale and being sacrificed at figures which mean a loss to the shipper. Occasional forced sales are heard of, but they are becoming less frequent. It is evident that the trade as a whole has made a very good get-away on the new year's business. The number of concerns reporting satisfactory progress in the closing-up of contracts is increasing week by week and the business almost invariably carries an advance over last year's prices. One peculiarity of the present season is that big business is less backward than small. One or two railroad companies which buy heavily in March for future delivery placed their usual contracts last month without making any serious objection to the higher prices which they were called upon to pay.

While tariff agitation is no doubt causing manufacturers of protected articles a good deal of worry and has impelled some of them to go slow in making advance purchases of coal and other supplies, there has been little actual slowing-down at the factories. The output of manufactured goods in recent months has only about kept pace with demand and there is no heavy accumulation of stocks.

The crude rubber market continues inactive and there is no evidence of any great desire to purchase by the manufacturers here.[1] With the close of the active tire manufacturing season there seems little chance that there will be any big demand for some months to come, and the present price for the Para grades, ranging from $1.05 to $1.08 per pound, is liable to decline further rather than advance, although, of course, the usual manipulative measures adopted so often in the rubber market may cause temporary advances which may range all the way from 5 to 15 cents a pound.

But the general impression is that the time of high prices for rubber is past. That there will ever again be a period of $3 rubber is practically out of the question. In fact, there is no reason now for the belief that rubber above $1.70 is more than a possibility, at least for months to come.

There are many reasons for this belief, principally, however, the fact that it is becoming easier every year to compute in advance the rubber output for the year. This is because Brazil no longer occupies the absolute center of the rubber-producing industry that was held by that country for so long. Rubber plantations started from five to ten years ago are now producing at a rate that makes them a big factor, and within a very few years they will be in a position to exert an even greater influence over the rubber market. Of course, Brazil will for many years be the chief producer of the highest grades of Para rubber, but she can no longer be said to have the domineering influence that, up until a year ago, she exercised.

Crude rubber for the past month, even at the low level as compared with a year ago, has been strong. Particularly has this been true during most of the last week. During the last two days, however, weakness has again developed, and the price may soon be below the $1 mark again. Manufacturers are buying on the hand-to-mouth basis, it is generally acknowledged, and unless there is a big increase in the boot and shoe business this policy will probably continue throughout the winter.

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[1] From the *Wall Street Journal*, 1911.

According to the *London Economist:* "In 1909 the world's consumption of rubber was about 70,000 tons, of which the plantations provided at the most 4,000 tons; in 1912 consumption had risen to about 100,000 tons, of which the plantations provided 30,000 tons. In three years' time Mr. Akers estimates that the plantations alone will yield 173,000 tons, and in 1919 302,000 tons. If prices fall to *2s.* a lb., it is perhaps not unreasonable to assume that consumption will continue to increase in the existing uses of rubber, and rise, perhaps, to 150,000 tons or even 200,000 in a few years, for as prices fall, not only will the consumption of rubber goods increase, but also genuine, good rubber will be substituted for the poor and composite materials which so frequently masquerade as 'rubber.' Unless, however, a very large demand arises for new industrial purposes which are not yet apparent, it will be impossible to dispose of the enormous quantities mentioned except at very much lower prices than have ever yet been known in the rubber market. In these circumstances clearly one of two things must happen. Either large tracts of land that have been planted must be abandoned to the jungle, or else the cost of working the estates must fall to the neighborhood of 6*d*. a lb.—a cost which has already been realized in favorable circumstances in Ceylon. This is, indeed, a choice of evils, for both of these eventualities mean ruin or reconstruction for a good proportion of the boom estates. Such is the situation created by the reckless expansion of three years ago, during which some 75 millions of British capital were invested and a million acres brought under cultivation or prepared for planting."[1]

105. DEMAND AND SUPPLY IN THE MARKET FOR AGRICULTURAL PRODUCTS[2]

THE SUPPLY AND THE PRICE OF EGGS

The egg market lends itself well to the study of many of the forces which influence prices. Irregularity of the supply, variation in the quality of the product, and a highly elastic demand are characteristics strongly accentuated in the egg market.

Irregularity of supply.—The monthly distribution of the annual production of eggs on a Wisconsin dairy farm is shown in Fig. 1. The chart shows the percentage of the year's egg production gathered in each month in the year for five years. March and April were months of greatest production. The production fell off greatly during the summer months and reached its lowest level during the winter months.

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[1] From *New York Journal of Commerce and Commercial Bulletin*, June 4, 1913.

[2] Adapted from H. C. Taylor, *The Prices of Farm Products*. Bulletin No. 209. Wisconsin Agricultural Experiment Station, May, 1911.

It is believed that this chart tells fairly well the story of the irregularity of egg production on farms where the keeping of poultry is primarily for supplying the wants of the household, and the sale of eggs more or less incidental.

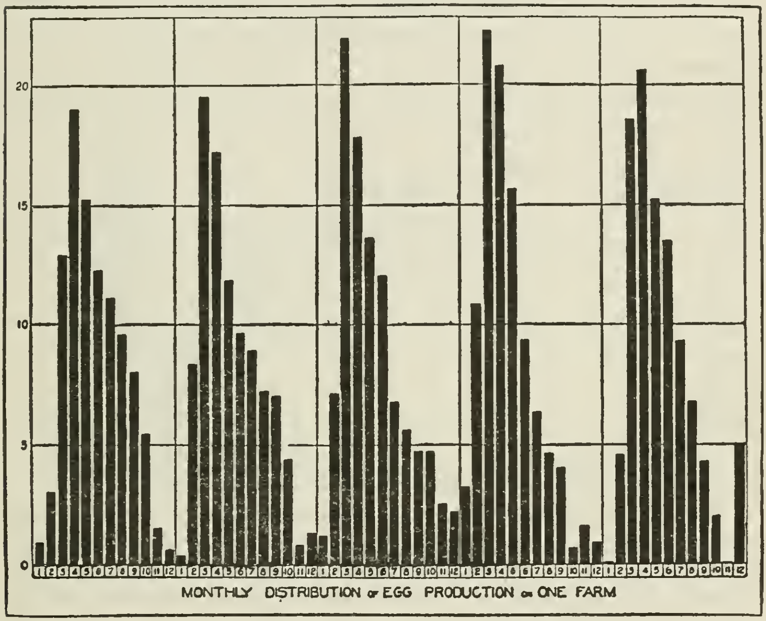

FIG. 1.—The egg supply is irregular, varying with the months as shown by these statistics from one Wisconsin farm. Each bar represents the production for one month in terms of per cent of the annual total for each of the five years, 1905–10. This chart is based upon data collected by C. I. Brigham, a co-operator in farm records with the U.S. Department of Agriculture and this station.

It is possible for the poultryman to control the egg production in such a manner as to secure a much larger proportion of the annual product in the winter months, but the bulk of the egg supply is not produced under these conditions. Taking the United States as a whole, there is little concentration in the poultry industry. It appears that the distribution is comparable with that of white women on farms. These facts all show that egg production is a widely disseminated non-specialized industry and that the supply is not likely to be appreciably influenced by the conscious action of a few individuals.

The Chicago egg market.—The supply of eggs upon the Chicago market corresponds to these conditions of production. In Fig. 2 the solid black line represents the weekly supply of eggs brought to Chicago, from February 1, 1909, to March 20, 1911. The supply of eggs reached the maximum in April and May and gradually fell off until the end of the year.

The price of eggs on the Chicago market shows the influence of the irregular supply. The black dots connected by lines, in Fig. 2, show the price of the best grade of eggs for one day in each week.

The relation between the supply curve and the price curve in this chart illustrates the influence of variation in the supply upon the price of this perishable commodity. The fact that the price of eggs in Chicago remained above 20 cents during the periods of greatest receipts in 1909 and 1910 calls for some explanation. The elastic character of the demand for eggs has already been mentioned. At a price between 20 and 25 cents eggs become an inexpensive substitute for meat, and at the time of the year under consideration, weather conditions are usually such that eggs can be put upon the market in good condition. Under these circumstances the consumption of eggs expands enormously.

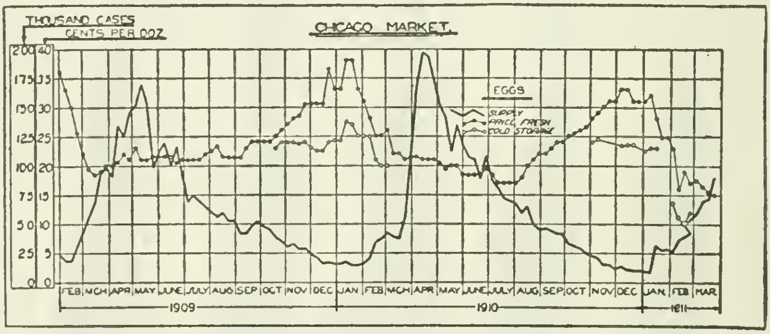

FIG. 2.—Weekly receipts and price of eggs of the "prime first" class on the Chicago market. February 1, 1909, to March 20, 1911. Note the irregularity of the supply; the relation of supply to price, a decrease in the supply being followed by an increase in the price, and also the wide difference in price between fresh and storage eggs.

The storage of eggs.—The market is not entirely dependent, however, at the period of maximum supply upon the demand for eggs for immediate consumption. At that period many eggs are purchased and put in storage for use during the period of scarcity of fresh eggs. The time of year when eggs are put in storage by one Chicago firm is shown in Fig. 3. Without question this speculative buying steadies the price during the spring months of excessive supply, distributes the consumption more evenly through the year, and secures for the producers a higher return for their eggs than could be secured without storage.

The stored egg is much less valuable in winter than is the fresh supply. The lower price curve shown for a few winter months in Fig. 2

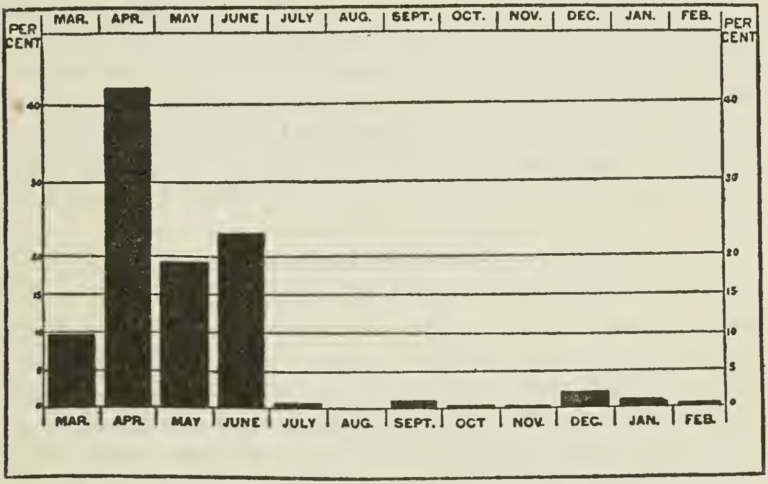

Fig. 3.—Quantities of eggs put into storage each month by one Chicago firm. Note that practically the entire stock is purchased during a few weeks in the spring when prices are usually lowest as a result of an abundant supply.

shows the prices of refrigerator eggs. It will be noted that there was often a difference of ten cents per dozen between the price of fresh and of stored eggs. It should also be noted that the price at which the refrigerator eggs were sold was not very much higher than the price at which they were purchased. There must, in the long run, be enough difference to pay the actual costs of storage including rent for the warehouse, losses due to deterioration, interest on the money invested, insurance, and enough profit to induce a business man to give his attention to this business instead of doing something else.

The thing of first importance both to producer and to consumer is an understanding of the proper methods of handling eggs—proper methods on the farms, in the country stores, in transit, in cold storage, in the shop of the city retailer, and in the homes of the consumers. Success in holding a part of the eggs of the surplus season to meet the demands of the deficit season is dependent upon proper handling at every point. It is safe to say that more bad eggs reach the kitchens of America from other causes than from too great a length of time in cold storage. Furthermore, many eggs that reach the kitchen in good condition are allowed to deteriorate in a warm room before the cook finds occasion to make use of them. There is responsibility all along the line.

The testimony before the senate committee relative to foods held in cold storage was to the effect that eggs produced during hot weather will not, even under most favorable conditions, remain fit for use over three months, and that more often in less than a month they are unfit for human food. This is reason for not storing eggs more than temporarily during the hot months, but it does not give basis for legislation against the storage of eggs in the cool months of spring to be kept over until the period of scarcity.

The risk is great in the storage of eggs, because of the fact that the whole supply must be gotten rid of before the increase in the supply of fresh eggs, or they may become almost a total loss. Note in Fig. 2 how the price of refrigerator eggs fell, in February, below the price which had been paid for them and then quotations ceased. This speculative feature is accentuated by the fact that the period of greatest scarcity is followed so closely and so abruptly by the period of maximum supply, and by the uncertainty of the time of this change, owing to the influence of the weather.

Another aspect of the storage of eggs worthy of consideration is the relatively long time between the surplus period and the period of scarcity. Vegetables may be stored late in the fall for winter use, but eggs must be stored early in the spring and kept through all the hot months. Natural conditions determine the length of this period of storage. Any government regulation intended to improve the conditions of the storage of eggs should conform to this fact.

It is obvious that a law limiting the storage of eggs to three months ignores the condition of nature which makes storage desirable. If it is the purpose of Congress to put an end to the storage of eggs in the season of surplus for use in the period of scarcity, a three-month limit will be as effective as a ten-day limit. The normal length of time from the beginning of the surplus period to the end of the scarcity period should be accepted as the maximum length of time to store eggs. April is the month in which the maximum quantity of eggs is put in cold storage (Fig. 3). The stored eggs are drawn upon whenever the supply of fresh eggs falls below the market demand. This means that even in August and September, stored eggs are used, but the greatest demand comes in December and the aim is to dispose of the whole supply by the end of January.

If, when properly handled, eggs deteriorate so rapidly that those stored in April will be unwholesome in December and January, that would be adequate grounds for abolishing the cold storage of eggs so far as it relates to the equalizing the supply of the surplus and definite periods. If, however, by proper methods of handling from the farmer to the consumer eggs can be successfully kept from April until January, such storage will result in a great national economy. Obviously the storage industry should not be legislated out of existence if proper knowledge and efficient control are all that are needed in order to avail the people of the United States of this economy without danger to the health of the consumers.

Government regulation, requiring that stored eggs be sold for exactly what they are, would be of great benefit both to the producer and to the consumer. If every egg sold carried a date stamped upon it by the producer, this in itself would enable the consumer to discriminate between city stored eggs and those brought directly from the farm. Furthermore, much more might be done than has been to extend the limits of knowledge regarding the best methods of preserving eggs.

Without government regulation the winter egg producers of a locality might protect themselves against unfair competition of stored eggs (the selling of stored eggs as fresh) by stamping their eggs in such a manner as will enable the consumer to know what he is buying.

THE SUPPLY AND PRICE OF POTATOES

There are several factors which make the price of potatoes very uncertain. While the supply from year to year is rather irregular the demand is inelastic. The size of the crop has little influence upon the quantity of potatoes the ordinary family in the city will buy. At almost any price that has prevailed the potato is cheaper than substitutes. The demand being stable, and the potato having value only until the next crop comes into general use, the price shows wide fluctuations.

In Fig. 4 the areas of the checked bars represent the annual production of potatoes in the United States and the area in black represents the production in Wisconsin. The monthly high and low prices on the Milwaukee market are shown by dots connected by lines. It should be noted that there is a very wide range each month between

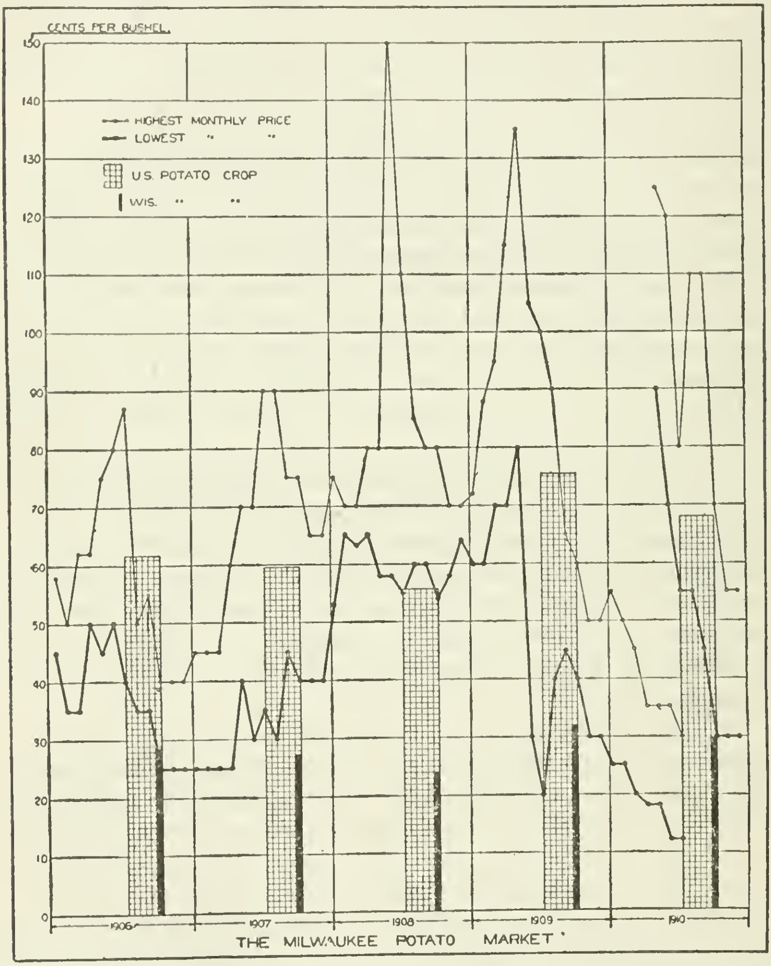

FIG. 4.—The areas of the checked bars represent the annual production of potatoes in the United States, while the black bar represents the production of Wisconsin. The curves show the high and low prices each month. At the right, separate sets of curves are given for old and new potatoes, showing the higher price of the new stock.

the high price and the low price. This implies a very uncertain condition of the market. This wide range of prices is doubtless due, in part, to differences in the quality of the potatoes arriving on the market. This is indicated by the fact that the range is greatest at the time when old potatoes are yet on the market and new potatoes are arriving. For 1910 the chart shows the high and the low prices for both old and new potatoes for four months. The indications are that the very high prices are for early potatoes shipped from a warmer climate.

Normally the price is highest just before the local supplies of new potatoes arrive in abundance upon the market, falls to a low level just after potato harvest, and gradually rises during the season when most of the supply comes from storage.

From 1906 to 1908 the potato crop decreased. There was a remarkable response in the price curve, and the 1908 crop was all sold at very remunerative prices. This was followed by an increase of about 10 per cent in the acreage devoted to potatoes the next year, and as the production per acre in 1909 was unusually high, the crop was enormous. The result was a continuous fall in prices. The price was not good at harvest time, but it grew worse every month. Thousands of bushels of potatoes were never sold by the farmers. The profit was out of the potato business, and yet the acreage planted in 1910 was practically the same as in 1909. The early crop was poor, but the total production was far above the amount which would command a remunerative price. It may seem strange that the farmers who had lost money on their 1909 potato crop should have continued to cultivate so large an acreage. In one potato region a government employee went about preaching the doctrine, "Now is the time to plant potatoes. Lots of people will be scared out, the crop will be small and prices high." It is probable that the very recent and unprofitable experience in the going out of hog production in order to sell corn only to find hog prices rising and corn prices falling had some influence in keeping the potato growers of the north central states headed in the direction they were going.

There is some degree of probability that the price of some of the staple farm products will gradually rise with the growth of population and the resulting increase in market demands. But it is not probable that the longtime average price of potatoes will ever rule very high. The production per acre is large; this means that rent is not a large item of cost per bushel. The area physically suited to potato production is vastly greater than will ever be needed for that purpose and there are areas of potato land, not valuable for other purposes, large enough to produce the whole supply. Potato growing for local consumption is likely to remain important throughout the northern states. But the profitable growing of potatoes for the central markets will probably be limited to relatively small areas which are good for potatoes, and of relatively less value for other purposes.

FACTORS INFLUENCING THE PRICE OF CORN

The supply of corn varies from year to year on account of changes in the acreage planted and variations in the climatic influences which determine the yield per acre. In 1901 the acreage was high, but the weather was so unfavorable that the production fell to about two-thirds of the normal crop, and the price increased in inverse proportion to the supply. In 1902 the crop reached a higher level than in 1900 (Fig. 5). The price declined, but not to the level of 1900.

From 1902 until 1907 corn prices showed no sensational tendencies. The price was always lowest after the season of corn gathering and highest during the summer months. This seasonal variation in prices is normal. Corn weighs more just after harvest than it does later, and the price should vary inversely with the amount of moisture it contains. The storage of corn involves loss from mice, rats, and other vermin. The interest on the money one could realize from the corn if sold is another inducement to sell early rather than hold the crop. These and other factors tend to keep the normal price of corn lower after harvest than at other seasons of the year.

The price situation in 1908 requires some explanation besides the condition of the supply. The crop of 1907 was smaller than that for 1905 or 1906, but larger than the crop for 1900, 1903, and 1904, which crops created no abnormal condition on the corn market. The explanation must be sought in changed conditions of demand.

The demand which is effective in making corn prices is not limited to that made by manufacturing industries which use corn as a raw material, and that buy corn upon the market. The demand made by livestock upon the farmers where the corn is produced is of first importance. Taking the average for the years from 1900 to 1909, inclusive, 52 per cent of the corn crop was consumed within the county where grown, before March 1 of the year following its production. Twenty per cent had been sold and 38.2 per cent was in the hands of the farmer on March 1.

There is a close relation between corn production and the swine industry. The important regions of swine production are in the corn belt. But it should be noted also that some parts of the corn belt are not so important in swine production as others. Central Illinois, for example, shows great concentration of corn production, but the swine industry is of relatively small importance in this region.

There seems to be a division of territory within the corn belt with regard to the methods of realizing on the corn crop. Illinois sells more than twice as large a proportion of her corn crop as does Iowa.[1] This may be explained in part by the fact that Illinois is more centrally located with respect to the brewing, distilling, and other industries which consume corn. Nearness to Chicago, the greatest corn market, is also a factor tending to make this condition the normal one.

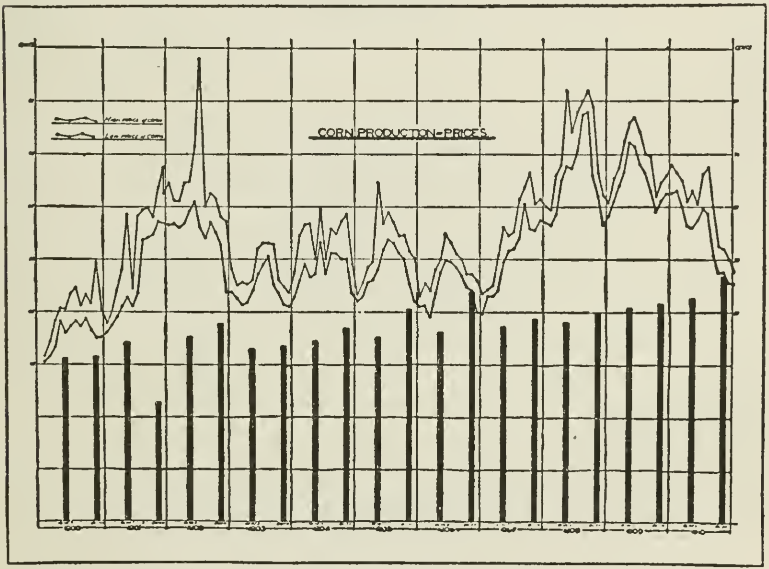

FIG. 5.—The acreage of the corn crop of the United States is shown by the left-hand bar for each year and the annual crop in bushels by the right-hand bar. The ratio between area and yield is such that the two bars would be equal when the average yield is twenty-five bushels per acre. The two curves show the high and low prices of corn at Chicago for the period, 1900 to 1910.

The demand for corn by the swine industry varies with the price of hogs. The feeding of corn to hogs was unusually profitable during the years 1906 and 1907. This stimulated the swine industry until the number of hogs to be fed from the 1907 crop was the greatest ever known in America (Fig. 6). The hogs required so nearly all the corn that the supply available for industrial purposes was very small. A hog half grown has to be prepared for the market even if the price it will bring would not justify the rearing of the pig, for the only way to realize anything on the investment already made in producing half-grown hogs is to continue adding to the investment until they can be marketed. In 1908 this required the feeding of high-priced corn to relatively low-priced hogs. Farmers fed corn to hogs with the feeling that they would have made more money had they sold the corn. This condition resulted in a decline in swine breeding. The resulting reduction in the demand for corn for the feed lot, accompanied with an

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[1] *Yearbook*, U.S. Department of Agriculture, 1909, p. 437.

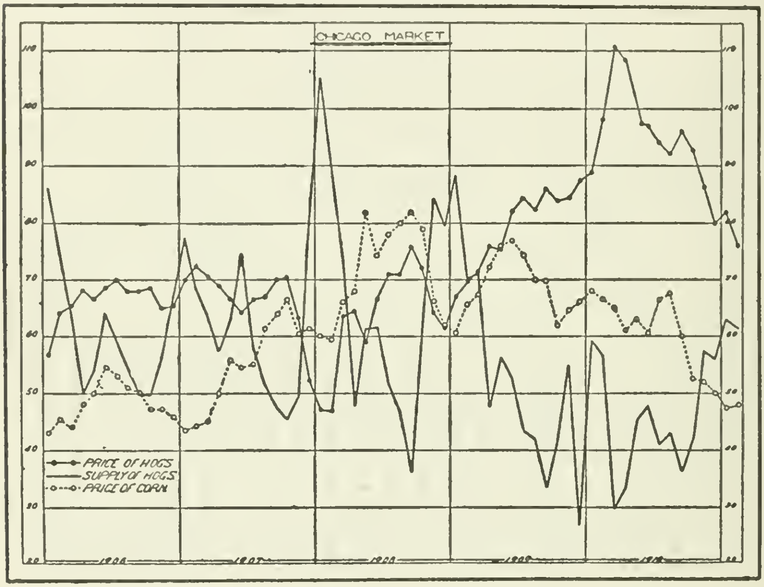

FIG. 6.—Relation of the price and supply of hogs to the price of corn at Chicago. The price curves are so drawn that when one bushel of corn produces ten pounds of pork the amount which the hog-price curve rises above the corn-price curve represents the net return for the extra labor of breeding and feeding. In 1906 and 1907 there was large profit in feeding corn to hogs, while in 1908 there was a loss. The figures on the margin represent the monthly high price of corn in cents per bushel, the monthly high price of hogs in tenths of cents per pound, and the monthly receipts of hogs in tens of thousands.

increased production of corn, brought into operation the forces which explain the present downward trend of prices on the corn market.

The corn region of the United States is limited on the north and on the west by climatic conditions, but in the south the limit is set by the competition of cotton. Cotton and corn occupy the same position in the system of crop rotation. They are both crops which can be cultivated while growing and which for this reason can be called cleansing and tilth-giving crops. Without a crop of this kind in the rotation it becomes necessary to introduce the summer fallow into the rotation. The purpose of the fallow is to give opportunity for cultivating the land in order to clear it of weeds and bring it into good tilth.

Not only do corn and cotton occupy the same place in the field system, but they both require the attention of the farmer at the same time. This means that with a given land and labor supply the corn can be increased in the cotton belt only by decreasing cotton production, and vice versa. When the price of corn is very high relative to the price of cotton the acreage of corn can be increased in the cotton belt. It happened that the high price of corn was contemporaneous with the extension of the ravages of the boll weevil into the cotton regions of Mississippi and Louisiana. These two forces operated together in making corn better able to compete with cotton. To these conditions in part it is to be attributed that the corn acreage of 1910 was much greater than in 1908. In the United States as a whole the acreage increased 12.1 per cent. In Iowa the increase was 4.5 per cent, in Illinois 12.3 per cent, while the increase was 16.6 per cent in South Carolina, 15.5 per cent in Alabama, 21.9 per cent in Mississippi, and 45.6 per cent in Louisiana.

106. ORGANIZED SPECULATION AND ITS REGULATION[1]

THE SERVICE OF ORGANIZED SPECULATION

Laying aside the gusts and eddies of speculation and the choppy movements, it will be found that, notwithstanding the manipulations that take place, the prices of commodities vary with the demand and supply as shown by the net visible supply in store.

In the diagram is shown a curve representing the yearly average prices and another representing the variations in the visible supply.

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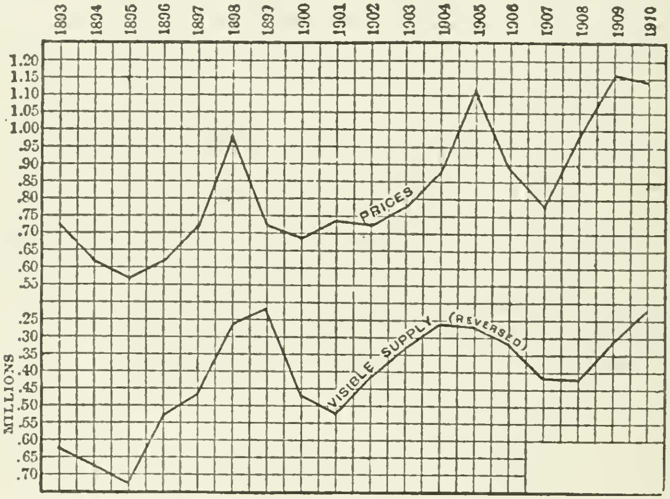
[1] Adapted from H. H. Brace, *The Value of Organized Speculation*, pp. 132–33, 138–40, 178–79. Houghton Mifflin Co., 1913.

[See also Selection 100: "Organized Exchanges: Futures, Puts, and Calls," and Selection 228: "Hedging as an Insurance Against Risk."—EDITORS.]

The curve representing visible supply has been reversed, so that when it bends downward, it shows that the supply is growing larger, and when it bends upward, a smaller supply is indicated. The reason the curve was made to vary in this way is because an increase in the visible supply is a bearish indication, and a decrease is a bullish indication. If, then, the price of wheat goes down with an increase in the visible supply, and goes up with a decrease, the curves as arranged would indicate it, and suggest that the market did move in harmony with the demand and supply as revealed in the visible.



By examining the diagram the reader will see that, while there is by no means a proportionate variation between the two curves, their most important movements are coincident. Furthermore, it is seen that prices have a tendency to move sooner than the visible supply, thus indicating that the market leaders, from the reports of crops and acreage, together with other indications of prospective change in demand and supply, were able to predict what the visible would be, and hence to initiate a price movement before the demand and supply of the actual commodity were reflected in the visible.

If trade were really free, if all dealers and producers acted with judgment and discretion, and if the facilities at hand for conducting each business were in all cases perfect; then speculation, as well as any business, would show better results to the community. One of the duties of organized speculation is to fix prices upon a legitimate commercial basis and to provide for their continued adaptation to the movements of trade and industry. It must be confessed that the result is accomplished but indifferently. The reason is principally found in the fact that the similarity of the business to gambling leads into the market all kinds of adventuring traders who have not given serious and painstaking study to the question of the fluctuations of prices and market improvements.

Some of the important movements of prices under organized speculation are due to the trading of the amateurs or unskilled operators just mentioned. The great number of purchases and sales that they make, most of them being based solely on mere whim or caprice, causes an exceedingly erratic market with numerous rapid minor declines and advances. But the professional speculators, many of whom deal in the actual commodities, have sufficient nerve and skill to anticipate the larger reactions and cycles and so to narrow down many of the wider swings of the market and keep it within closer limits.

As a price regulator, therefore, organized speculation has some excellences mixed with serious faults. Organization tends to make any activity more effective; and the principal task accomplished by the speculator, whereby he stops a decline by his purchases and an advance by his sales, is facilitated by giving him the opportunity not only to buy before he sells, but also to sell before he buys. On the other hand, the extreme ease with which a deal may be made upon a speculative exchange and the small capital required are attractive influences upon the unskilled speculators, whose operations cause most of the confusion and erratic fluctuations seen in speculative markets. These amateur speculators, while losing their own money, derange the market, creating tendencies which even the wealthy professional speculators only partially overcome.

The indirect effects of the facilities afforded by organized speculation upon the world of commerce exhibit its value in a better light than the direct effect of fixing prices. While the prices made are subject to criticism in that they are often artificial, the business of the exchanges is so closely articulated to the outside commercial world that it works with the utmost smoothness in relieving the business community of many of the uncertainties of business.

The speculative exchanges furnish a continuous market in which all transactions can be liquidated during exchange hours. This important service makes Wall Street the center of the financial system, as it is the only place in which financial error may be atoned for and freely liquidated. It gives stability to the loan market, and renders possible the enormous business of lending upon stocks, securities, warehouse receipts, and other collateral, its excellence as an agency in facilitating this business being indorsed by the banks. The stock exchange does not cause panics, but saves us from the worse effects of them, as it bears the burden and takes the responsibility when the worst results of financial excesses are threatened.

The exchange market, not only for commodities but for securities, furnishes the place where hedging in all its various forms may be best undertaken. It serves to knit together all business and gives a wide field to the principle of insurance. It is especially valuable in giving the small business house the necessary security in doing business, so that it may compete successfully with its larger rivals.

The exchange gives free play to the modern principle of specialization. It produces a world market where broad conditions are given due weight, and which serves as the basis of all markets, but it leaves to local influences the special task of adapting these world prices to the conditions of a particular place. The prices fixed upon the exchanges, from the broad vision of those who make them, serve well to direct commerce in its important divisions, and, in the course of trade as reflected in market quotations, a prophecy is given in regard to business conditions which it would be well for all to heed. The speculative process reduces costs and husbands resources, building up a stock of commodities for use in case of crop failure or other disaster. The means adopted to accomplish this purpose are of the most modern type. Publicity is a prominent feature; and the central idea in all the activities of the exchange is to give free play to commercial forces, to unite without restricting, to promote solidarity without crushing the individual.

The fault which is most often found with organized speculation is that it favors short selling, and consequently many favor the abolition of that practice. But it would appear that when the liberty either to buy or to sell according to the opinion of the trader upon the market is restricted, the idea of a free exchange has been lost sight of. For organized speculation exists in order to make prices; and the principle upon which it is based is that the best method to give freedom in price-making is to afford the greatest facility to all parties to make such bids and offers as they wish.

Prohibiting short selling will result in removing the most important check which keeps a bull market from rising to unreasonable limits, and moreover the result would be that when the market turned and everybody began to sell it would fall to unreasonable depths since, short selling having been prohibited, there would be no buying on the part of shorts seeking to cover. Thus a market where short selling has been prohibited is a one-sided market and such a market is one-sided going up and one-sided coming down. It is impossible to make the market so that all deals must in every case be purchases. By attempting such a thing the principal effect is to bunch the persistent buyers at one time and the persistent sellers at another. The only method by which this condition can be avoided is to permit such freedom in trading that selling and buying stand on the same plane, so that one may sell before he buys or buy before he sells with equal facility.

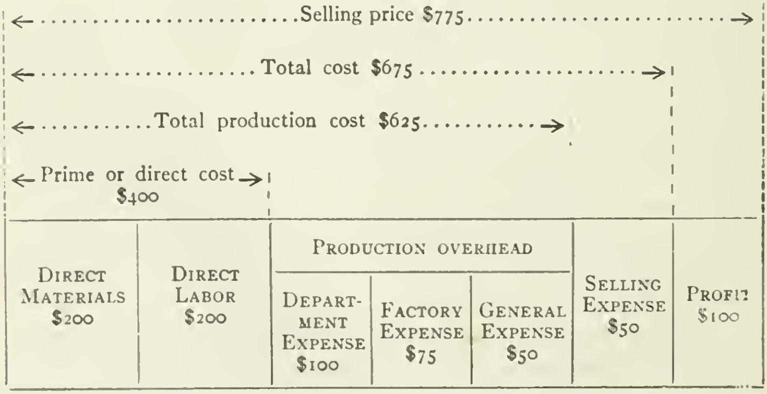
If we go to the extreme of abolishing organized speculation altogether we may gain to the extent of checking one form of gambling, yet we should lose the many advantages obtained by organized speculation. It would result in prices being fixed in a crippled and restricted market, the transfer of risks by means of hedging to those who specialize in risk taking would be prevented and this would prove a special hardship for the small producer who is less prepared to meet such risks than the large producer, and finally, as experience in Germany and elsewhere has shown, such a measure would simply be evaded and in all probability cause more injury than benefit to the commercial world.

The only alternative which would be acceptable to organized speculation as it exists today would be a reformed system which retained the essential features, but eliminated, so far as possible, the uncommercial practices which have such unwelcome prominence in large commercial exchanges. Institutions which have only the outward forms of exchanges should be dissolved or else made into true exchanges. Uncommercial practices and all manipulation should be discouraged or prohibited; and amateurism, the greatest cause of the evils of organized speculation, should be eliminated, even at the expense of much effort on the part of legislatures and of the exchanges themselves.

The best method to pursue in discouraging the illegitimate use of organized speculation is to encourage its legitimate use. The idea should be instilled into the minds of traders that the exchanges are places for the transaction of business, not for gambling or any form of robbery or extortion. No attempt should be made to force the amateur speculator or person of risk-taking propensities to avoid all risks, but he should be encouraged to take those which are necessary and for the good of the community, and so to educate himself in risk taking that he will cease to be an amateur. If the adventuring traders are led to substitute the necessary risks of commerce for their reckless gambling venture there will remain but little to make the service of the exchanges truly ideal. Most of the other reforms suggested are but methods of accomplishing this important one. In short, it is through educating the people in the proper use of organized speculation considered as a commercial instrument that reforms can best be accomplished.

In effecting these reforms the difficulties of securing legislative action could be avoided if the better element, acting through the regularly constituted authority of the exchanges, were to pursue a consistent policy in the direction indicated. The measures taken should not proceed to startling lengths at first. It is only by gradual stages that an institution which has been perverted can be brought to its true and beneficent purpose. Speculation so organized that the transactions will be legitimate and perform a service offers the only acceptable alternative to the system of organized speculation as it exists today.

107. A COST DIAGRAM



This diagram serves to illustrate, by purely arbitrary figures, the component elements of cost. The illustration is applicable to a case where the plant is divided into factories and the factories into departments so that the overhead on a specific task is first apportioned on the basis of the work in a particular department; the task then bears its proper proportion of the general expense in that factory and finally it is called upon to bear its proper share of the general expense of the whole plant. Finally selling expense is apportioned.

108. ITEMS ENTERING INTO COST[1]

Let us consider, if you please, the cost of production from the manufacturers' standpoint. What is it and what does it involve and how shall it be handled? There are four groups that enter into every factory cost: (1) the cost of labor; (2) the cost of material; (3) burden cost (or overhead charges); (4) selling cost. The aggregate of these four fixes the point per unit of product where profit begins. Let us discuss them separately.

I. LABOR COST

First, labor cost. In a modern industry this is often not the largest element in cost per unit of their product. In some industries it is rarely the largest element in unit cost. I am told that in an American locomotive the percentage of labor cost is 20 and that the percentage of material cost and of burden and overhead charges is 80.

It needs only the statement to show that the important factor in labor cost is not the rate of wage, but the rate of output. It is not what you pay, but what you get for what you pay that counts.

In an English factory I found a screw machine making bolts of various sizes, and a boy running it at a very small wage, probably about 2 shillings a day. I stood looking at the boy and his product; first, twenty ½-inch bolts, and then twenty-five ⅛-inch bolts, and then fifty ¾-inch bolts and then five or six 1-inch bolts, and then back to quarter-inch. I went to the superintendent and said to him, "That boy is costing you more than a man who earns $3 a day would in one of our shops." He said, "Why?" I said, "His time is used in altering tools. He is 'breaking up,' as we say, altering his machine from time to time and stopping his processes 10 to 15 times a day."

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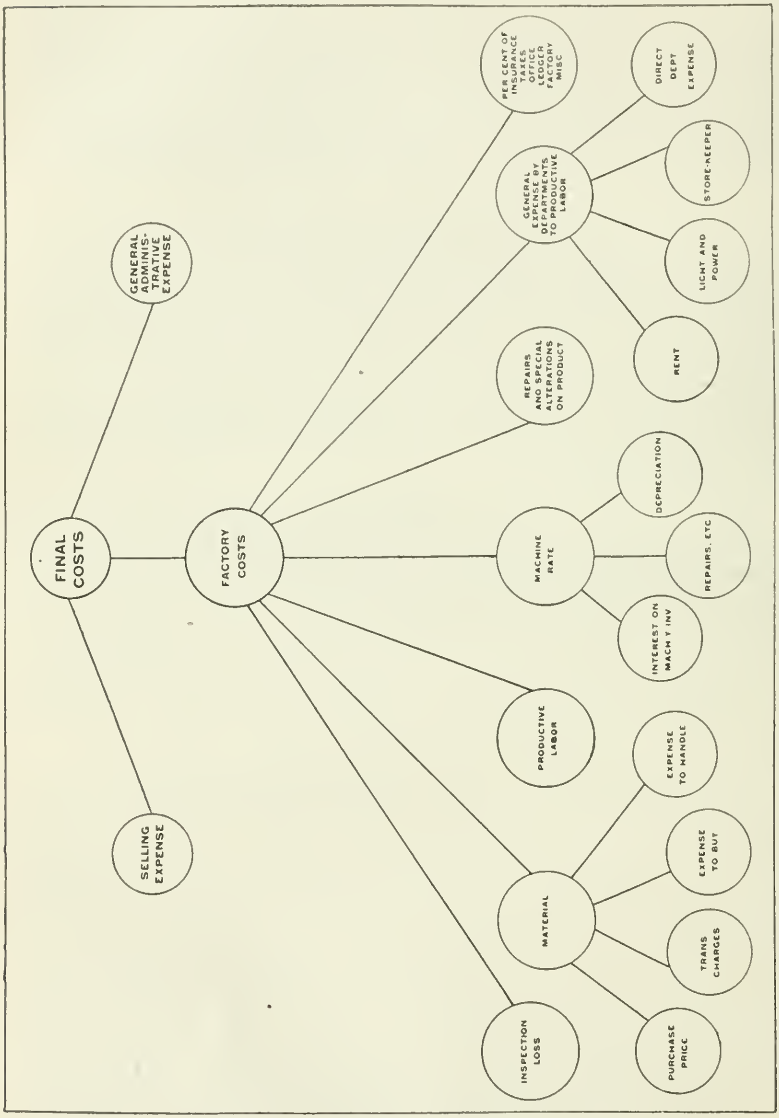
[1] Adapted from a speech by William C. Redfield in the House of Representatives, June 12, 1911. *Congressional Record*, 62d Congress, 1st session, Vol. XLVII, Part II, pp. 1941–45.

He said, "What would you do?" I said, "Give him one size and let him run all day on that. The next morning give him another size and let him run all day on that, and the next morning give him another size; do not stop your machines, but run them steadily on one size."

COST CHART



This analytical chart represents graphically the numerous elements which enter into the cost of any article from the raw material to the final sale. The factory costs only are separated into their elements. The selling and administrative expenses also are complex, and the final problem of ascertaining costs is intricate.

From *Business Administration*, p. 134 The System Co., 1909.)

One of the things I should like to burn into your thought is this—the essentially variable quality of cost. It can not be talked about as a fixed thing. Cost is everywhere and always variable, at every time and in every place.

Output varies with the character of the workmen, the equipment, its arrangement, or other local conditions, with the nature of the superintendence, with the discipline, and so forth. It is absurd to assume that work done by a man paid $4 daily costs more per annum than work done by a man paid $2 daily. It may be more or less costly, and depends upon other conditions. Therefore, because certain goods are produced at a certain labor cost per unit when the wage rate is $3 per day in a certain place, it can never be argued that the same wage rate on similar goods results in a like labor cost per unit in another place. It may vary from 10 to 50 per cent. To discuss the wage rate as the controlling factor in labor cost per unit is both inadequate and misleading. The railroads are a very notable example of this. The English railways have vastly cheaper labor than we, but their freight charge per ton-mile is two and one-half times ours. With pride the Indian railway department told this last winter that, though their labor is one-eighth of ours in cost per day, they had succeeded in getting down to a trifle lower freight cost per ton-mile than we. They had been years at it, with labor one-eighth of ours, and had just succeeded.

Now, the question as to a manufacturer's control of his labor cost apart from the wage rate I want to illustrate by examples.

I know a factory in which the product was doubled in two years without adding a man or without adding a machine. And this is the way it was done: The men had been paid on day work. The labor men have, and they properly have, a horror of piecework, as it is commonly administered, because, I am sorry to say, manufacturers have so abused the piecework principle that the laboring men have justly come to fear it. As piecework is handled in most factories it ought to be hated, as it is hated, but in this particular factory the head of the concern got the idea that he could save by guaranteeing his men a high wage. He said, "We will guarantee your day rates; you shall always earn your present day's pay. We will also guarantee that your piecework rates shall not be cut. We will agree with one another that obvious mistakes will be corrected either way, but if you earn large pay, understand, your piecework rate shall not be cut."

That factory operated upon that basis for many years. The wages of some men went up to $6, and in some odd cases even to $7 a day. Now, when the men were guaranteed an unlimited earning rate, see what happened. The manufacturer said, "There is the machine. There is your power. Go ahead. Earn all you can." Naturally, the first result of that was largely to increase the product. Then three other things happened. The manufacturer went to a man and said, "Pat, you are earning pretty good wages. It does not make any difference to me what you earn. The more you earn the better for us both. But there is one thing you can not afford, and that is to have your machine shut down for repairs. It hurts me, and it hurts you every hour that that machine is idle, and your machine is of that particular kind and engaged in that particular work that knocks it to pieces if it is not properly taken care of. Every hour it is delayed in operation it hurts both you and me." Says Pat, "What is it that you want?" "I want you to spend about 15 minutes before work starts every morning in overhauling that machine in your own interest. Do not let it get into such shape that it will need repairs."

I cannot tell you the exact number of thousands of dollars per annum that was saved in that factory in that simple way, but it was several times $10,000 a year, just that item of examining carefully the machines every morning before beginning regular operations.

In the next place, the system of using fuel had been more or less careless in this shop. The manufacturer went to his workmen and said to them, "Boys, you are not going to be cut, no matter what you earn. You cannot afford to waste time in firing improperly. You must be careful." His men did as instructed. At the end of three or four weeks about an hour and a quarter's time was saved each day, amounting to one-eighth of the operating time of that part of the plant, besides a saving of fuel.

In most factories the element of defective goods is a large element of cost. This manufacturer went to his men and said, "Boys, you are well paid. There is no limit, practically, to what you can earn. But it is not fair on that basis to make any bad goods." The men thought the matter over among themselves, and finally they came to him and said, "What is it you want?" and he said, "I want you to replace the bad goods on your own time and to replace the material that you waste." And right there were saved several thousand dollars more in the course of a year.

In those ways, without touching the rate of wage, the output of that factory went up double in two years; and the same thing, to a greater or less degree, depending upon different circumstances, is possible everywhere. But someone will say about the case I have quoted that there must have been lax management theretofore. I can assure him that was not the case.

Labor cost per unit varies with time and place, and in the same shop is constantly changing. It is unlike in each of several mills producing the same goods, belonging to the same company. A superintendent who would take three mills making the same goods, under the same ownership, in three different cities, and get the cost alike would be a wonder. For example, I have in mind two factories, belonging to the same concern, where for two years it has been a constant effort to get the costs alike in making the same goods. But what are you going to do when in one factory power costs three times as much as it does in the other?

Labor cost is affected by sanitary and climatic conditions. It varies with the quantity and the quality of the output, and it can never be assumed that it is at the close of the year what it was at the beginning of the year in the same shop. It is enormously modified by the progress of invention. The labor cost in your shop in January may be in some respects entirely wiped out by July. The labor cost in July may be entirely altered by December; else what is your purchasing agent for, and for what purpose are you feeling out all over the world for the latest machinery?

Labor cost varies with the arrangement of machinery within the shop. It is affected by the space available. It varies with changes in material, with the sufficiency and the regularity of the supply of material and its suitability to the work. And the labor cost of Monday when the stock runs out Monday afternoon and new stock comes in Tuesday is not the same on Tuesday that it was on Monday. The steel mill may have made an error and your labor cost go flying up for the time. And I am speaking now, gentlemen, from an experience in figuring labor costs to hundredths of a cent per unit.

Labor cost is affected by the lighting and the power equipment of the shop, and will change with the going of one superintendent and the coming of another. I am sure I need only to say these things one after the other to have their entire reasonableness made plain to you all.

Labor cost will alter radically within a month, by the introduction of new tools, new machinery, or the change of a process, even to the extent of having a whole process eliminated. It varies with the wastefulness of material used in producing an article, excessive use of supplies, the loss of time and material occasioned in making defective goods; and every one of these items has to be carefully watched by any alert manufacturer.

The labor cost is affected by methods of paying (by piecework on a righteous basis, and by day's work on an unrighteous basis) and by a just and considerate application of the methods of paying apart from the amount paid.

Labor cost is, therefore, a variable element. It cannot be measured by any fixed standard.

But labor cost in any factory is both direct and indirect, as will be made plain; upon the proper adjustment of one to the other depends in a degree the labor cost.

II. MATERIAL COST

Reaffirming, therefore, that in many industries the unit cost of labor is not the largest element of the total unit cost, but may be a small percentage thereof, we pass to consider the cost of material. This is the most fixed of all the elements of cost, but only a little thought is needed to show that this, too, is variable. In two shops, one buying in large quantities and the other small quantities of the same goods, the price of the material will vary. In two large shops which buy the same quantity, but have buyers of different skill and differing in amount of free capital with which to purchase, the cost will vary. In two shops in the same business, but located differently with respect to transportation, the cost will vary. Within the shops the cost of material will vary with the handling facilities provided, and with the space available for storage. The cost of material will vary with the system of receiving the same and storing it. The cost of material must always include such important and variable items as freight, cartage, wharfage, demurrage, and the like.

The cost of material must always include the wages of the storekeeper and a share of rental for the space occupied by it. The cost of material will vary also with such depreciation as will take place if it is not protected against loss. This, therefore, though relatively a fixed quantity, is variable, so that in different shops, in the same line of business, it cannot be argued that the net material cost in one even approximates that in another.

The cost of material must include the factory supplies, the purchase, keeping, and management of which is an important and complex element of cost where thousands may easily go out of sight. Consider what it may mean to have one purchase of bad lubricating oil. Its use on valuable and delicate machinery may cause the loss of thousands of dollars in a week.

But when the variable items of unit cost of labor and material are combined you have only obtained what is known as prime cost, or actual outlay, and have still to consider two serious elements in cost, each of which sometimes amounts to a larger total than either labor or material, and sometimes exceeds both.

III. OVERHEAD COST

We therefore take up, third, cost of burden or overhead charges. This is often ignored or not appreciated at true value. More concerns are wrecked by failure to estimate or manage it properly than by any other single cause save perhaps insufficient capital.

Among the items covered in burden cost are such as these: Taxes and assessments, repairs to buildings and machinery, indirect labor, superintendence, experiments, insurance and fire protection—two different things—depreciation, bad debts, accidents, interest and discounts, power, heat, and light, and legal expenses, every one of them matters needing the most careful attention, if they are to be kept within reasonable limits.

A large concern located on expensive land in a city with high rates of assessment and taxes may bear a burden in this single respect enough to pay a profit on the entire investment of a small concern more favorably placed; but, as showing the complex nature of this problem, the same concern may, by reason of its equipment and its efficient organization, produce goods, though paying the same or higher wages, so cheaply as to overcome this handicap.

Repairs vary with the character of the buildings, their age, their location, with climate, and with respect to machinery, with the care given to it. In some industries this item of repairs is very large.

Indirect labor is an unfortunate necessity in every industry. A cotton mill employs carpenters and steam fitters, whose presence is necessary, but whose expense is a burden on the output. Every modern shop has to have a tool room. This question of indirect cost is often a very serious one, and is a matter requiring the closest professional study.

The cost of superintendence is apt to be heavy in proportion as the labor is cheap. I was very much interested in what the gentleman from Connecticut said about the jute mills in Calcutta in his recent address, because only eight weeks ago I was in those jute mills talking with the superintendent. I find it a very excellent plan, if you wish to get at the details of a factory, to avoid the owner. I asked this gentleman in this large jute mill about the question of his labor. He said it was cheap, very cheap. I said, "Is it wasteful?" He answered, "Extremely wasteful." I asked him in what other respect it was bad, and he said it was bad in the respect that it required an unusual amount of European superintendence—three to four times as much as they would give in Scotland.

Experiments looking toward new or better output, tools, or machines are a very expensive item in many factories. It is hardly necessary to say that insurance varies. An old wooden mill must charge the cost of its output with many times the unit cost for insurance that is borne by goods produced in modern so-called slow-burning buildings. The actual loss from fires, over and above that covered by insurance, is a part of the burden cost frequently forgotten and of uncertain amount, but often serious. Depreciation is a large item of cost, amounting often to as much as 10 per cent per annum of the entire value of the machinery, buildings, and other equipment, varying with conditions. Sometimes neglected by manufacturers, it forms a burden of a self-enforcing character, which, if not reckoned as an annual addition to the burden cost, will come in a lump sum whenever machinery or buildings must be replaced. The loss arising through machinery thrown out of date by new inventions is a serious part of burden cost frequently forgotten. The loss arising from the continued use of antiquated and slow-producing apparatus is another large part of burden cost.

This question of slow-producing apparatus is sometimes by itself alone very serious. I recall one large sugar refinery in New York City that closed on that account alone. I recall another where the single item of cartage was so great it had to go out of business. I recall three woolen mills that stood idle for years because their machinery was out of date and they would not replace it, and another that was idle and stood idle because it was three miles from a railroad and the cartage killed it. Those are the things that do it, and not the difference in the wage rate.

The losses from accident are a constant terror to every manufacturer, and yet I stood, within the last few weeks, in a factory claiming high protection at our hands here, which could have made a profit by saving in handling charges alone, but which stood to lose —for lack of care for human flesh and blood, and because of failure to properly protect its machinery—thousands of dollars every year.

The loss arising from bad accounts is present in every business, and varies with the care in selling goods.

The burden charge arising from interest and discounts varies with the amount of free capital available in the business. I do not refer to the interest upon bonds or the interest on the total investment, with which some concerns charge themselves as an expense, but rather the interest that is to be paid upon real estate mortgages and upon money borrowed to supply working capital and for discounts allowed customers for prepayment.

Power, heat, and light vary greatly. The source of power is so variable that no general statement can be made. For example, power from water, from steam, from electricity, or from gas engines. I am interested in two concerns using electric power largely. One pays 5 cents per kilowatt hour, taking it from steam; the other 1½ cents a kilowatt hour, taking it from water, a difference of over 300 per cent in the power rate.

It will be seen that the item of burden cost is one of importance and difficult to define. It is one in which every manufacturer is very closely interested, because it very often affects the cost of his production far more than the rate of wages that he pays. Manufacturers, however, are very apt to assume the burden cost to be less than it is. Instead of making a careful study of it, they take what seems to be the obvious course, of reducing the pay roll, instead of the more economical course of studying closely their burden charges. Once my partner said to me, "Although your department of this business is not the factory, I want you to go into it every day for an hour or two, simply to find what is wrong." And for ten years I never went a day that I did not find something that could be bettered.

Who shall calculate accurately the difference in labor cost in a large factory between the output of a force of, say, 1,000 mechanics, well paid, well equipped, well housed, with ample light and power, with machinery well arranged, with material exactly suited to their purposes, with management that wins the loyalty and enthusiasm of the men by liberal pay and just treatment, and the output of an equal force of men working in poor light, with variable, insufficient power, poor equipment, with wages cut to the smallest limit, with improper sanitary conditions and harsh treatment?

The difference between the output under above conditions may be the difference between ruin and dividends. You cannot confine human nature within the limits of a wage rate. Wholly outside of the rate of pay there is unlimited scope for brains in manufacturing.

IV. SELLING COST

But in all this we have merely produced our goods and laid them at the factory door. They are not yet sold, and before their sale takes place another serious element of cost must be added. Therefore we must discuss selling expense. This selling expense is sometimes as large as the entire cost of labor, material, and burden.

I have only to mention to you what it costs to sell automobiles in order to get your immediate assent to that. Selling cost includes such items as traveling expenses, commissions, advertising, office salaries and rental, postage and stationery, packing and shipping expense, office equipment, office heat and light, and similar items. I need only mention these to show at once that they are of a very variable character. In some lines the cost of advertising alone is equal to the combined cost of all things else put together. In some industries traveling expenses are a very heavy item. Office expenses are very high in other industries, and in others office expenses might well be greater if they would so insure the ascertainment and reduction of burden cost.

109. ANALYSIS OF THE RETAIL PRICE OF EGGS IN NEW YORK CITY[1]

The various items of expense to be included under middleman charges for the handling of eggs in New York City have been set forth in a report recently issued by a committee of the New York State Food Investigating Commission, and are indicated in the following table which is quoted almost exactly. This table is supposed to show the accumulation of charges on eggs based on a hypothetical basic price of twenty cents per dozen.

Producer's price	$0.20	$0.20
Shipper's charges:		
a) Labor in collection and packing	.005	
b) Cases, fillers, and packing	.0073	
c) Transportation charges to city	.0106	.023
Commission for handling	.01	.01
Jobber's charges:		
a) Cartage from dock to store	.00133	
b) Candling and grading	.00666	
c) Storage and insurance	.016	
d) Jobber's profit and charges	.01	
e) Delivery to the retailer	.004	.038
Retailer's charges:		
a) Operating expenses, 10 per cent	.0271	
b) Retailer's profit, 5 per cent	.01497	.042
Price paid by consumer		$0.313

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[1] From C. W. Thompson, "Technical Studies in Egg-Marketing," *Agricultural Experiment Station Bulletin 132*, The University of Minnesota (1913), p. 38.

110. MIDDLEMEN'S CHARGES IN MARKETING AGRICULTURAL PRODUCTS[1]

Product	Where Produced	Where Consumed	Price Received by Producer	Price Paid by Consumer	Difference
APPLES No. 1 Baldwin	Marlboro, Mass.	Boston	$2.25 (bbl.)	$7.50 (bbl.)	$5.25
APPLES Extra fancy Jonathan	Wenatchee Valley, Wash.	Chicago	1.45 (box)	8.00 (box)	6.55
APPLES Best No. 1 Baldwins	Maine	Liverpool	4.00 (bbl.)	6.42 (bbl.)	2.42
APPLES Jonathan	No. Yakima, Wash.	Boston	1.66 (box) (90–100 apples)	3.60 (box)	1.94
APPLES	Maine	Portland	2.00 (bbl.)	6.00 (bbl.)	4.00
MILK	Montgomery Co., Pa.	Philadelphia	.03¾ (qt.)	.08 (qt.)	.04¼
MILK	Middlesex and Worcester Co., Mass.	Boston and vicinity	.04 (qt.)	.10 (qt.)	.06
MILK	Worcester Co., Mass.	Boston	.02½ (qt.)	.08 (qt.)	.05½
CAL. ORANGES Alta Crestae (navel)	Bonita, Cal.	Boston	1.612 (box)	3.50 (box)	1.888
CAL. ORANGES Ruby Bloods	Bonita, Cal.	Boston	Loss .068 (box)	2.00 (box	2.068
ORANGES (navel)	California	New England	1.07 (box)	3.00 (box)	1.93
PEACHES	Paonia, Cal.	Denver	.245 (box)	.75 (box)	.505
PEANUTS	Virginia	Boston	.04½ (lb.)	.18 (lb.)	.135
POTATOES	Aroostook Co., Me.	Cambridge, Mass.	.50 (bu.)	.90 (bu.)	.40
CAL. POTATOES Oregon Stock	California	San Francisco	.70 (sack) (2 bu.)	1.50 (sack)	.80
DRESSED POULTRY (Broilers)	Eastern Mass.	Boston	.33 (lb.)	.55 (lb.)	.22
DRESSED POULTRY (Roasters)	Eastern Mass.	Boston	.19½ (lb.)	.33 (lb.)	.13½
POULTRY (Capons)	Eastern Mass.	Boston	.22 3/7 (lb.)	.35 (lb.)	.12 4/7
POULTRY (Fowls)	Eastern Mass.	Boston	.16 (lb.)	.28 (lb.)	.12
RICE	Arkansas	Boston	.40 (bu.)	4.16⅔ (bu.)	3.76⅔
STRAWBERRIES, No. 1	Georgia	Boston	.08–.14 (box)	.15–.25 (box)	.07–.11
TOMATOES	Florida	Boston	.35 (crate)	2.10 (crate)	1.75
TOMATOES	Mt. Holly, N.J.	Philadelphia, N.E. section	.3775 (basket)	.80	.4225
DRESSED TURKEYS	Northern New York	Boston	.25 (lb.)	.38 (lb.)	.13
MILK (in spring)	Cooperstown, N.Y.	New York City	.025 (qt.)	.08 (qt.)	.055
POTATOES	Mass.	Cambridge	.55 (bu.)	.90 (bu.)	.35

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[1] Adapted from T. N. Carver, *Principles of Rural Economics*, pp. 330–33. Ginn & Co., 1911.

MIDDLEMEN'S CHARGES IN MARKETING AGRICULTURAL PRODUCTS (*Continued*)

Where Does the Difference Go?
Picking, $0.25; barrel, $0.25; freight, $0.25; commission, $0.25; sorting, $0.15; labeling, carting, etc., $0.10; storage, $0.50; wholesaler, $2.00; retailer, $1.50
Growers' Association, $0.10; railroad rate to Chicago, $0.50; wholesaler, $2.45; retailer, $3.50
Barrel, $0.35; freight, commission to exporter, salesman, etc., $1.00; retailer, $1.07
Growers' Association $0.09; freight, $0.50; refrigerating, $0.10; expressage, $0.03; wholesaler, $0.12; retailer, $1.10
Broker, $0.50; commission man, $1.50; retailer, $2.00
Freight, $0.00¾; retailer, $0.04
Freight, icing, bottling, $0.00¾; wholesaler, $0.02¾; retailer, $0.01; delivery, $0.02
Transportation, $0.00⅓; contractor, $0.02⅔; peddler, $0.02
Picking, packing, etc., $0.50; freight, $0.828; auction commission, $0.06; retailer, $0.50
Picking, packing, etc., $0.50; icing, $0.21; freight, $0.828; auction commission, $0.03; retailer, $0.50
Packing and selling, $0.40; freight, $0.83; half-refrigeration, $0.10; local dealer, $0.60
Commission, $0.045; cost of box, paper, and packing, $0.14; wholesaler, $0.20; retailer, $0.12
Freight, $0.002; wholesaler (including packing), $0.018; retailer, $0.115
Bagging, $0.01; freight, $0.12½; wholesaler, $0.064; hauling to Cambridge, $0.03; retailer, $0.17
Freight, $0.10; commission agent, $0.26; wholesale and retail dealer, $0.44
Shipping and selling commission, $0.05; wholesaler (including cost of dressing, shrinkage etc.) $0.07; retailer, $0.10
Shipping and selling commission, $0.04¾; wholesaler (including cost of dressing, shrinkage, etc.), $0.04; retailer, $0.05
Shipping and selling commission, $0.03⅔; wholesaler (including cost of dressing, shrinkage, etc.), $0.04; retailer, $0.05
Wholesaler (including cost of dressing, shrinkage, etc.), $0.07; retailer, $0.05
Milling, $0.23¾; miller's profit, $0.21½; wholesaler's expenses, $0.15; his profit, $1.00; retailer's expenses, $0.16¾; his profit, $2.00 Cost to land them in Boston, $0.03–$0.05
Railroad rate, $0.62; cartage, $0.03; shipper, $0.10; commission merchant, $0.05; packing, boxing etc., $0.35; jobber, $0.15; retailer, $0.45 Freight, $0.05; commission agent, $0.0225; wholesaler, $0.15; retailer, $0.20
Local agent, $0.01⅓: boxing and packing, $0.01; railroad rate, $0.01; big dealer, $0.01⅓; retailer, $0.08 Local haul, $0.001; shipping, $0.009; freight, $0.005; wholesaler (who is also the distributor), $0.04
Packing, $0.02; commission, $0.03; railroad transportation, $0.05; retailer, $0.25

III. COSTS IN THE RETAILING OF SHOES[1]

Gross profit so far encountered ranges from 20 per cent to 42 per cent of the *net sales*,[2] according to the grade of goods and with almost exactly the same number above 30 per cent as below 30 per cent. The Bureau of Business Research is inclined to think that under present conditions the typical gross profit of shoes retailing at or under $3.50 will be found to run from 23 per cent to 25 per cent and for those retailing above that price a percentage of from 30 to 33 is the type.

Gross profit as treated above includes discounts.

Total operating expense so far encountered ranges from 18 per cent, or possibly a little less, to 35 per cent of the net sales in going concerns. The figures as a whole center about 24 per cent, that is, about as many are above as below 24 per cent, with the operating percentages of medium-grade stores centering around 23 and of higher-grade stores around 27.

Freight and cartage is not included in the above operating expense percentages, as it is deducted from the merchandise statement. Nor is interest included, which is deducted from net profit.

Buying expense is an item kept by scarcely any but department stores, and with them it is seldom a true buying expense, because the buyer's salary or commission usually includes services for selling or the directing of selling and also for management.

It is interesting to note, however, that we have found a tendency for estimates of time devoted to buying (which includes the looking-over of stock records and of size-up sheets as well as the inspection of samples) to center about certain proportions according to whether in a rough way the yearly sales are above or below $50,000. With the proprietor's or manager's salary or drawings distributed in the same proportion, a surprisingly uniform percentage of buying expense results, no matter what the sales or the expense may be.

This percentage ranges from 0.8 to 1.8 of the net sales. The Bureau has percentages ranging from 0.3 to 3.1, but the minimum does not comprehend the full buying expense as defined above, and the maximum is for department stores and not comparable for reasons already noted. The figures at present seem to center about 1.1 per cent, with a marked concentration of them between 1.0 per cent and 1.3 per cent. Some interesting comparisons could be made with some department-store buying expense figures in their shoe departments.

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[1] Adapted from the *Bulletin of the Bureau of Business Research of Harvard University*, No. 1, May, 1913. This bulletin is a preliminary report. The Bureau regards the findings as tentative in some particulars.

[2] "Net sales" means gross sales less returns made by customers and allowances made to them.

The very mention of the item, *selling expense*, is almost a sufficient argument for the necessity of a uniform accounting system—so many opinions prevail as to what constitutes selling expense. While the boundaries between buying, selling, and management are not clear and distinct but shade into each other, the main elements of each of these can be distinguished according to sound theory and practice, and if those nearer the line have to be divided somewhat more arbitrarily, just as in certain railroad accounting items, it is vastly better to do so when the advantages of accurate comparison are considered.

The percentage of salaries and wages of the sales force has been encountered ranging from 5.0 to 10.3. Percentages as low as 4 and as high as 13 have been eliminated because of doubt of their being genuinely comparable and because of insufficient opportunity to verify their accuracy. There appears a marked concentration of the figures between 7 per cent and 8 per cent in cities of more than 100,000 population. It is sufficient indeed to point to a standard of 7 per cent. It may be possible to attain 6 per cent in cities of this size. The Bureau has eleven percentages running between 6 and 7 but in the light of its present knowledge 6 per cent would be very thoroughly investigated before being accepted.

Advertising with its definition as standardized by the Bureau's system has been found ranging from 0.0 per cent to 8.8 per cent, with a tendency to center about 2.0 per cent with the greatest concentration between 1 per cent and 2 per cent.

Delivery expense has been found to date ranging from practically 0.0 per cent on the lower-priced stores to 1.4 per cent on the higher-priced stores. The figures of the stores making deliveries center around 0.6 per cent, with a marked concentration between 0.4 per cent and 0.6 per cent of the net sales.

Rent has furnished the greatest variation of all, namely, from 1.8 per cent to 14.6 per cent of the net sales in going concerns. Despite this rather astonishing range, a distinct tendency is encountered for the figures to center about 5 per cent, as many being above that percentage as below, with three-fifths of them all falling between 3 per cent and 7 per cent. Between 3 per cent and 4 per cent alone, however, there is sufficient concentration of percentages to warrant the suggestion of not only 5 per cent as a typical figure, but 3 per cent as a standard to be aimed for. So that, for example, a dealer who found his rent percentage 7 would know not only that 5 per cent was a more normal figure but also that 3 per cent was by no means an unattainable figure.

On rather limited data, so that it must be stated tentatively, it yet begins to appear as if the rent item fell off markedly in importance in towns of less than 100,000 population.

It has been urged upon the Bureau from weighty sources that the rent and advertising items should be considered together, because of the advertising element involved in a location of high rental.

This seems plausible, and the Bureau is watching for any apparent connection between the advertising and rent expense. As yet no direct relation appears. High rent percentages with low advertising percentages have been encountered, but in no marked degree more than high rent percentages with high advertising percentages.

Decidedly the general practice is to charge *interest* on borrowed capital only. That on capital invested has been added by the Bureau, and since the sum of both is deducted from the net nominal profit to secure the final net profit, it is not treated as an expense.

The interest figures thus made up have ranged from 1.0 per cent to 7.9 per cent but have centered around 2.5 per cent and concentrated between 2.0 per cent and 2.5 per cent of the net sales.

The number of *stock-turns* has a range so far in our data of from 1.0 to 3.6 times. It seems to center about 1.8, and a sufficient number have stock-turns of 2.5 to warrant accepting that as a realizable standard. That is, a shoe store has been encountered whose stock turned over no more than once in a year, and another whose stock turned as many as 3.6 times. The majority, however, turned their stock more than 1.8 times, but less than 2.0 times.

It is probably scarcely necessary to call attention to the public importance of this item of stock-turn. Imagine in the roughest kind of a way the millions of capital that could be released from investment in merchandise should the retailer increase his stock-turns but once. The bearing of this, furthermore, upon the demand for higher profit per pair, now rather prevalent, may also be seen. More stock-turns mean an increase in net profit without any raising of the price per pair.

The *annual sales of the average salesperson* have been obtained by dividing the annual net sales of a concern by the average number of regular salespeople, certain rough but fairly well-tested equivalents being adopted for the extra salespersons.

The averages encountered to date range from sales of $5,000 per salesperson per year to $16,500, centering about $10,000. It should be remembered that our data are still preponderantly from the large cities and very likely raise this central average. In the cities under 50,000 and in rural communities it is expected to run considerably less.

The number of salespersons should form one of the first rough tests of the efficiency of a retail shoe concern, and in the large cities the above figure of $10,000 annual sales per average salesperson will be found not far wrong, with possibly a reduction to $8,000 for suburban stores. Again may be noted the same variations in speed of marketing mentioned under stock-turns. For example, the salesperson of men's shoes can attain a higher average than the salesperson of women's shoes. The figures as given, however, are for stocks as a whole.

Summary Table of Percentages of Given Items to Net Sales

Item	Lowest Percentage	Highest Percentage	Percentage about Which Data Center (Not an Average)	Percentage about Which a Concentration is Sufficient to Indicate a Realizable Standard
Gross profit, including discounts	20	42	Low grade 23–25 High grade 30–33	....
Total operating expense not including freight and cartage and interest	18	35	Low grade 23 High grade 27	Low grade 20 High grade 25
Buying expense	0.8	1.8	1.1	1.0
Sales force	5.0	10.3	8.0	7.0
Advertising	0.0	8.8	2.0	1.5
Deliveries	0.0	1.4	0.6	0.4
Rent	1.8	14.6	5.0	3.0
Interest	1.0	7.9	2.5	2.0
Stock-turns	1.0	3.6	1.8	2.5
Annual sales of average salesperson	$5,000	$16,500	$10,000	....

It should further be remembered that the extremes above given are in themselves averages and not the record of any individual salesperson. Certain individual sales records of $30,000 and above have been encountered, but no averages approaching that.

Where rents are high absolutely, that is per square foot, the salesperson's average also rises, as would be expected, indicating the advantageous site in a dense traffic zone. For example, the high average of $16,500 above was reached on one of the following great business thoroughfares: Broadway, New York; Chestnut Street, Philadelphia; and State Street, Chicago. But the increased volume of sales does not seem to keep the rent expense from ranging from 8 per cent to 12 per cent in some of these cases.

The table on p. 413 condenses the essential facts of the foregoing paragraphs.

112. PRICES TO THE SMALL PURCHASER[1]

The poor must buy everything at retail. They are, therefore, greatly handicapped in securing full value for their money in their various purchases of supplies. "The poor housewife knows what good bargains are, but the meagerness of her purse oftentimes prevents her from purchasing supplies except in very small quantities. She goes to the grocery store and buys a single bar of soap for five cents, knowing very well that she could get six bars for a quarter, and that if she should buy six bars she would save five cents; but, perhaps, if so much is spent for soap there will not be enough for food. She is buying potatoes at the market. For her large family a bushel of potatoes would not be an oversupply and that quantity can be bought for a dollar; but the outlay of a dollar for potatoes may not be possible. Instead of spending a dollar for a bushel she spends eight cents for a quarter of a peck, paying at the rate of $1.28 a bushel, losing nearly 30 per cent by the transaction. Three cans of tomatoes can be bought for 25 cents, but she has only enough money for one can, and for that she pays 10 cents, perceiving clearly as she does that for every five cans purchased in this way there is a clear loss of one can. She has gone the rounds of the market and has nearly finished her purchases, but there are still butter, sugar, coffee, and salt to be bought, and besides some matches are needed. For all these things she has 25 cents remaining. Butter is 30 cents a pound; sugar, 5 cents; coffee, 15 cents; salt, 5 cents a large sack or 3 cents a small sack (the latter being half as large as the former); matches 3 boxes for 5 cents or 2 cents a box. The purchase of a pound of butter cannot be thought of. The purchase of a half pound would leave but 10 cents for sugar, coffee, salt, and matches. If all these desired articles are to be bought, the remaining 25 cents must be skilfully spent. Practice has taught our housewife the art of making skilful divisions. She buys a quarter of a pound of butter for 8 cents, a half-pound of sugar for 3 cents, half a pound of coffee for 8 cents, a small sack of salt for 3 cents, a box of matches for 2 cents, and has 1 cent left with which to buy an onion for the soup. She has lost heavily on every one of these articles, including the onion, and she knows she has lost."[1]

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[1] Adapted from F. H. Streightoff, *The Standard of Living among the Industrial People of America*, pp. 154–59. Houghton Mifflin Co., 1911.

Besides these routine losses, the poor encounter other commercial disadvantages. One of these is the apparent necessity of buying on the instalment plan. It is certainly true that many an article would never be purchased at all were it not for this system, yet the buyer has to meet enormous overcharges on everything thus obtained. "A dollar or more is lost on a coarse blanket, two or three dollars on an almost worthless rug, twenty or thirty dollars on a sewing machine." In addition to the financial wastefulness of such a method of acquisition, there is a moral evil. To be always in debt for something is not wholesome, neither is it elevating to feel that one does not own all the furniture in the house, and that, unless payments are made promptly, the goods will be forfeited and all that has been paid for them utterly lost. On the other hand, it is even more degrading when the housewife yields to temptation, and so discourages the collector that he gives up his visits before the full sum has been paid. In spite of its perniciousness, however, instalment buying cannot be absolutely and indiscriminately condemned.

The very poor lose heavily in all their transactions involving money. The poor man's dollar does not bring him so much as the rich man's dollar, although it is very much harder to earn.

113. PACKAGE GOODS[2]

The consumption of various food products specially prepared and distributed in packages of various sizes has increased enormously during the last decade. While these packed goods are undoubtedly wholesome, convenient, and attractive, they nevertheless as a rule cost more to the consumer than does the same quantity of food purchased in bulk. Indeed, the consumption of package goods under present conditions involves a large amount of waste in the expenditure of income. The habit makes for increasing comfort, pleasure, and luxury in the household, but it adds heavily to the expense of living.

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[1] S. E. Forman in the *Bulletin of the United States Bureau of Labor*, No. 64.

[2] Adapted from the *Report of the* [Massachusetts] *Commission on the Cost of Living* (1910), pp. 340–46.

The practice of buying package goods, instead of purchasing the same food products in bulk, involves a threefold addition to cost: (1) the packages are frequently short in weight, and the purchaser often, if not usually, pays higher for the food value that he obtains than if he bought in bulk; (2) he has to pay for the extra cost of fancy packing and of distribution in small quantities; (3) as most of the package foods are heavily advertised, the consumer has to pay also for this expense. It is not implied here that the consumption of package foods should be discontinued altogether, and the old method of bulk purchase adopted exclusively. Consumers, however, should be made thoroughly acquainted with the fact that certain abuses have developed in connection with the purchase of the package foods, which reduce the amount of food value received for a given expenditure of money. . . . .

It appears, for example, that one brand of oats in packages costs 7.57 cents per pound, in bulk 3.3 cents per pound; bacon in glass jars 57.6 cents per pound, sliced but unpacked 35 cents per pound; corn meal in packages 5.6 cents per pound, in bulk 2½ cents per pound; graham crackers in packages 18 cents per pound, in bulk 15 cents per pound; cheese biscuit in packages 30 cents per pound, in bulk 20 cents per pound.

. . . . In defense of the package goods, it is contended that this method of bringing goods to the consumer is more convenient and sanitary than the method of bulk sale. The package keeps out the dust, dirt, and germs that otherwise would get into the food through the handling by dealers. Undoubtedly, the package method has a real advantage in its favor in the matter of cleanliness and neatness. The goods are usually prepared, also, in peculiarly attractive and appetizing style. The small grocery is often not notable for its sanitary and aesthetic appointments, and goods sold there under the conditions that existed in connection with the old practice of bulk purchase were often unwholesome and dangerous to public health.

114. VARIATIONS IN COST OF PRODUCTION AMONG DIFFERENT NEWS-PRINT PAPER ESTABLISHMENTS[1]

The 38 mills in the United States produced 940,478.1 tons of paper in the schedule period, at a total cost of $30,921,400.39, or an average total cost of production of $32.88 per ton. The lowest total cost in any one mill was $24.50; the highest, $43. The range in cost of ground-wood pulp per ton of finished paper is from $8.26 to $18.54, with an average for all of $13.27; for sulphite pulp the range is from $6.45 as the lowest to $14.12 for the highest, the average being $8.63; for all materials the average cost was $22.74 per ton of paper, with a range of from $15.64 to $29.22. The average cost of manufacturing labor is $3.27 per ton of paper, the range being from $2.19 to $7.26.

COST OF PRODUCTION OF NEWS-PRINT PAPER IN THE UNITED STATES, BY CLASSIFIED RATES OF COST PER TON

Total Cost per Ton	Number of Establishments	Tons Produced	Per Cent of Total Production	Average Cost in Each Group
News-print paper:				
Under $25	1	45,022.2	4.8	24.50
$25 and under $30	4	170,319.8	18.1	26.18
$30 and under $32.50	7	210,215.7	22.4	31.96
$32.50 and under $35	7	205,992.3	21.9	34.07
$35 and under $37.50	6	107,373.4	11.4	36.03
$37.50 and under $40	12	194,604.3	20.7	38.31
$40 or over	1	6,950.4	.7	43.00
Total	38	940,478.1	100.	32.88

As will be seen from the classified table above, the plant producing at the lowest cost of $24.50 per ton produces but 4.8 per cent of the reported tonnage; only one plant produces at the highest rate, and its production is but seven-tenths of 1 per cent of the reported tonnage. Four plants produce 18.1 per cent, at an average total cost of $26.18. Seven plants produce 210,215.7 tons, or 22.4 per cent of the reported tonnage, at an average cost of $31.96; seven other plants produce 21.9 per cent of the total, at an average of $34.07 per ton; while 25 of the 38 establishments produce 78.6 per cent of the reported tonnage below $37.50; while 12 establishments produce 194,604.3 tons, or 20.7 per cent of the tonnage, at an average of $38.31 per ton.

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[1] Adapted from the Tariff Board Report on the *Pulp and News-Print Paper Industry* (1911), p. 27.

The lowest average manufacturing-labor cost in the classified group is $2.24, and 9.9 per cent of the reported tonnage is produced at this cost for manufacturing labor; 31.6 per cent is produced at an average of $2.84 per ton. That is to say, 41.5 per cent of the total is produced at considerably less than the average of the whole, while an additional 24 per cent is produced at an average of $3.20, which is less than the average of the whole. An amount equal to 20.4 per cent of the total reported tonnage is produced at an average cost of manufacturing labor of $3.65 per ton; 11.1 per cent at an average of $4.22 per ton.

Taking the average of the manufacturing-labor cost for groundwood pulp ($2.18) and for sulphite pulp ($3.84), and considering that paper uses 80 per cent of ground wood and 20 per cent of sulphite, the total manufacturing-labor cost from the rough wood to the finished paper would be $5.782 per ton; that is to say, 80 per cent of $2.18 is $1.744, 20 per cent of $3.84 is $0.768, and these added to the $3.27 labor cost in the paper itself gives a cost of manufacturing labor from rough wood to paper of $5.782 on the average.

115. JOINT PRODUCT PRICES: BEEF[1]

The cost of beef is determined in part by the value of the by-products. The price of the live animal is reckoned to include the material for by-products as well as the beef, and the value of the by-products is regarded in the trade as a credit to the cost account of beef, or in other words, a minus cost. This is of course a rather arbitrary way of looking at the by-products account, because after all by-products are joint products, and the situation of the beef market (the prices of beef and the number of beef cattle slaughtered) determine in a considerable measure the prices of the by-products. The value of the latter, though small in comparison with the value of beef, is still important enough to considerably affect the total value. In the first half of 1903, for example, it is calculated for a large concern in Chicago that the average live weight was 1,165 pounds, the average dressed weight was 665 pounds, the average live price was $4.56, the average cost on dressed weight was $7.99, the average net value of hides was $6.64 ,the net value of hides per hundredweight of dressed beef was $1, the net value of butter fat was $3.95, the value per hundredweight of dressed beef was 59 cents, the net value of other by-products was $1.60, and the value of other by-products per hundredweight of dressed beef was 24 cents. The total value of by-products amounts to $12.19, or $1.83 per hundredweight of dressed beef. The cost of killing, shipping, and selling was $1.891 (excluding interest), which equals 28.4 cents per hundredweight. This should be deducted from the credit coming to the packer on the by-products in order to give the net credit he receives on the cost of cattle (reckoned on dressed weight). The difference, or net credit, is therefore $1.55 per hundredweight. These statistics show that with an average live price of $4.56 the cost per hundredweight of dressed beef would be $7.99, and the cost of making and selling the beef 28.4 cents in addition, but that there is a credit on by-products amounting to $1.83. Hence the cost price of the beef (excluding interest on capital) would be $6.44, and the margin between live price of cattle and net cost of dressed beef $1.88.

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[1] From the *Report of the Commissioner of Corporations on the Beef Industry* (1905), p. 164.

116. DIRECT AND INDIRECT COSTS[1]

The principle of apportioning the indirect costs according to ability to pay is not peculiar to the transportation business. It can be traced through numerous other industries. A very good analogy is that of the packing business. The original purpose of slaughtering houses was to supply meat. The margin between the price of cattle and the price of meat had to be sufficiently large to pay for the cost of killing and packing. These costs included two items, the cost of handling each particular animal *plus* a portion of the "overhead." In the development of the industry it was found that refuse matter could be manufactured into fertilizer, which in the market would bring a price somewhat higher than the added cost resulting from its production. Even though each unit of fertilizer did not pay as much toward overhead charges as each unit of meat did, no injustice was done to the purchasers of meat. On the contrary, they might profit by the production of the fertilizer, because the total overhead expense to be distributed upon the several units of meat was reduced by the amount contributed by the fertilizer department, thereby enabling the packer to reduce the price of meat. Likewise, other by-products came to be manufactured and each of them bore a part of the indirect costs, decreasing the amount that the original product had to bear, and thereby aiding in its production.

[1] From J. F. Strombeck, *Freight Classification*, pp. 21–24. Houghton Mifflin Co., 1912.

What has been said about the packing business holds also in the case of the petroleum industry and many others. Whenever a by-product can be manufactured, it is an aid to the industry engaged in its production if it contributes even a little to the meeting of indirect costs.

W. M. Acworth brings out an analogy between rail transportation and the production of electricity so convincing that it is well worth quoting in full. "The business of electric supply is usually a monopoly, and in this country [i.e. England] it is more often than not in public hands, yet electric undertakings usually make charges more widely differential than an ordinary railway. A typical charge is 5*d* per unit for electricity used for lighting purposes; 1*d* per unit for electricity used for power purposes. From the commercial standpoint the 5*d* for lighting is fixed as the maximum which competition and other illuminants will permit; the 1*d* is a charge made to induce users of steam power, gas-engines and the like, to adopt electricity as a substitute. As a matter of equity the case is this: The electric undertaking was established primarily to supply light. It involves large capital cost for short-lived machinery and mains. Plant and staff must be capable of dealing with maximum demand, and this demand—'the peak of the load,' as it is commonly called—only comes for about two hours of the day, and that during the winter months of the year. For about twenty hours out of the twenty-four, the bulk of the plant is idle; but interest, depreciation, and standing charges are running on all the time. Such service cannot but be expensive to give. There is, however, a way to make it less expensive. If consumers can be induced by the low price of 1*d* per unit to take electricity for power, they will use it in the daytime, to some extent even in the dead of night, when the machinery would otherwise be idle. The 1*d*—*ex hypothesi* the highest rate the traffic will bear—will more than cover the extra cost of fuel, and will help to dilute the general expenses of the undertaking. So far from the low differential rate being an injury to, or made at the expense of the consumers of light, the contrary is the case. The standing charges—the great bulk of the whole—instead of being charged on, say, 1,000,000 units, are now spread over 6,000,000, and the cost of supply per unit is proportionally decreased. The increase of the low-charged power customers is the only means by which the lighting customers can hope to see the charges made to them reduced."

And still another analogy might be offered. A manufacturer is selling his output in the domestic market at a fixed price, which nets him a fair return on his investment. The demands of the home market are not sufficient to enable him to run his factory at more than three-fourths its capacity. He finds that provided he reduces the price somewhat he can secure a foreign order which will enable him to operate his plant at its full capacity. This reduced price covers all the direct expenses connected with filling the order and leaves a small margin to be applied to the indirect costs of his business. It is good policy for him to accept that order. This is exactly the same principle on which carriers give low rates to cheap commodities to encourage their movement. A low-value commodity which cannot bear the regular rate is to the carrier in exactly the same relation as the foreign order is to the manufacturer. And further, no one can say that the domestic purchaser pays a higher price on his goods so that the foreign order may be filled at a reduced price. The domestic purchaser does not only not bear part of the burden of the foreigner, but on the contrary he may be benefited by that sale in that the additional earnings will enable a reduction in the domestic price.

117. DIMINISHING COST OF PRODUCTION[1]

Edison told Mr. Edmonds a very interesting personal anecdote, especially pertinent at this time when the accusation is made that the United States is dumping large amounts of manufactured products on the foreign market. Edison said:

> I was the first manufacturer in the United States to adopt the idea of dumping surplus goods upon the foreign market. Thirty years ago my balance sheet showed me that I was not making much money. My manufacturing plant was not running to its full capacity. I couldn't find a market for my products. Then I suggested that we undertake to run our plant on full capacity and sell the surplus products in foreign markets at less than the cost of production. Every one of my associates opposed me. I had my experts figure out how much it would add to the cost of operating the plant if we increased this production 25 per cent. The figures showed that we could increase the production 25 per cent at an increased cost of only about 2 per cent. On this basis I sent a man to Europe who sold lamps there at a price less than the cost of production in Europe. By doing this I was able to employ more labor to run my plant to full capacity, and this labor, of course, received high wages. American consumers were not injured in the slightest, and I was enabled to employ 25 per cent more men and get rid of surplus product by dumping it upon the foreign market.

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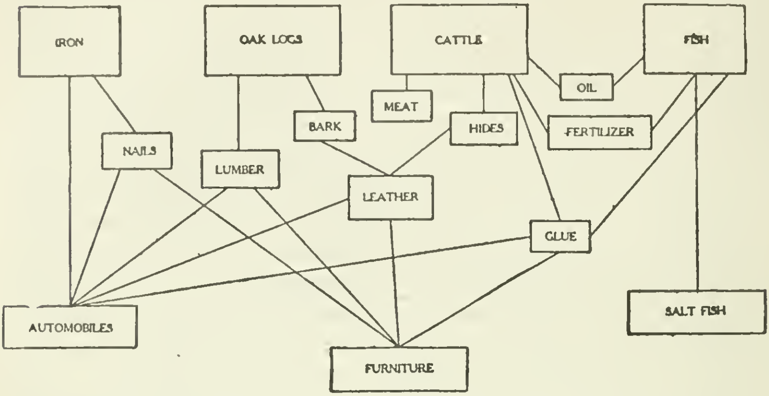
[1] From the *Wall Street Journal*, December 20, 1911.

118. DIAGRAM TO ILLUSTRATE DERIVED, JOINT AND COMPOSITE DEMAND, AND JOINT AND COMPOSITE SUPPLY



119. THE COMPLEXITY OF COMPETITIVE PRICE-MAKING[1]

The following paragraphs present in the briefest possible form an analysis of competitive disturbances with an attempt to differentiate them systematically according to, first, the economic situation of the competing unit, and, second, the nature of the product about which competition centers. For brevity, the analysis is thrown into outline form.

First. Competition insures a tendency to equal rewards as between competing units at a level not permanently below that of cost. Each competitor is concerned with the relation of his total receipts to his total outlay, and these tend to be equal. Each single, distinct economic process tends to produce value equal to its cost.

Second. This requires that each unit of the product should bring in enough to pay the cost for which that unit, itself and individually, is responsible. Where joint cost is absent, it makes no difference whether one enterprise produces many things or whether the same things are produced each by a separate entrepreneur. Each separate economic process still tends to earn what it costs though many are combined under one management.

Third. Where joint cost exists, the cost of an undertaking can no longer be subdivided in this simple way. The whole cost is no longer represented by the sum of the special costs. If items of product earn only their individual cost, the whole business is run at a loss, for the joint costs are not covered. While if the whole cost is covered, the outlays on joint account must be arbitrarily allotted. The latter alternative is what in the long run tends to happen. Hence competition does not control the ascribing of reward to various productive agents within the competing unit.

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[1] From John Maurice Clark, *Standards of Reasonableness in Local Freight Discriminations*, pp. 40–45. Columbia University *Studies in History, Economics, and Public Law*, Vol. XXXVII, 1910.

a) A business carried on largely at joint cost is a business of increasing returns, within certain limits. If the plant has some capacity unused, it is easy to see that it is more wasteful than if there were no such unused capacity. And to get the greatest efficiency possible, a plant must be big enough to combine the productive factors in the best possible proportions. When this point is reached, the business ceases to be one of "increasing returns," and the resulting special motive to expansion ceases. But this does not straighten out the bookkeeping difficulties caused by the joint-cost feature.

b) When businesses of increasing returns compete with each other, the practice arises of cutting rates to attract new custom while keeping up the general level of prices. This is discrimination between customers: "dumping" is a name that describes it rather well. If it is done by all the competitors at once it is an economic waste, and leads to "cut-throat" competition. This forces the total returns below the cost level.

c) It is evident that such a condition occurs only when the capacity of the existing means of producing goods is greater than is justified by the demand. This cannot happen permanently, however; the low level of cost will increase the demand until finally we reach the limit of the capacity of the plants to expand with decreasing cost. At this point the violent underbidding for marginal custom begins to diminish, and the prices tend to rise as the demand expands still further. This rise in prices is, however, in most cases limited to something near a cost level by potential competition. A considerable profit might, it is true, be retained; for men do not usually build big new plants unless those already in the business are earning extra good returns, so as to afford them a decided inducement to enter the field. But if the earnings of the plants in the business become very large, new plants will be built, for purposes of industrial blackmail if not for legitimate competition.

d) While the condition of increasing returns lasts, and the tendency to cut-throat competition is strong, it is to the interest of all enterprises to prevent it in any way possible. Where the product in question is fairly homogeneous, as in the case of a flour mill or a woolen mill, the extension of the one-price principle forms a very good means of drawing the line between fair competition and that which "spoils the market." Under this principle, each unit of a homogeneous product is charged with the same share of joint-cost outlays. This equal prorating, however, does not stand as inherently logical in itself. It rests rather on the business necessity for some such limitation.

e) Where the product, instead of being homogeneous, is very heterogeneous, any such simple limitation as has just been described is bound to fail. In such cases, if the condition of increasing returns lasts any length of time, direct, active competition becomes distinctly uneconomical and the chances are very great that it will be done away with entirely. Potential competition will then be the only governor of prices. This to a considerable extent is true of business conditions today. In the case of railroads potential competition is not very efficient, but other forces, generalized under the caption of "market competition" are claimed to have the same effect.

f) But it is only direct competition that can regulate the prices of all the single articles in a composite product. Even when the capacity of a producer is fully utilized so that further production would not fall under the law of increasing returns, still the fact of producing at joint cost would, within limits, allow considerable discretion as to the manner of sharing the existing general costs. Potential competition and market competition in its more general form, if not in all cases, leave such discretion in the hands of the "competitor"; that is, these forms of competition fail as regulators of prices in detail.

We have now in effect made a simple classification of the fundamental phenomena of joint-cost competition, which can be presented in tabular form.

Can we pigeonhole the railroad in the following scheme satisfactorily? It certainly falls in the two divisions that deal with joint cost and increasing returns. But to argue about the railroad, and to deal with it merely as a large manufacturing business producing a very heterogeneous product under conditions of joint cost and of increasing returns unusually long-continued—such a conception, while allowing for many of the peculiarities of railway economics, is still inadequate. There are still further departures from type

Competing Unit	Product Homogeneous	Products Heterogeneous
Producer in whose process joint cost is negligible.	Each unit earns its own cost.	Each unit earns its own cost.
Producer under the law of joint cost and increasing returns.	Temptation to cut-throat competition easily restrained by the sentiment of producers and the one-price principle.	Active competition runs almost inevitably into cut-throat competition, bringing *general price-level below cost.* This competition tends to destroy itself.
Producer under the law of joint cost, but working near maximum efficiency so that increasing returns are no longer important.	Temptation to cut-throat competition removed. Joint costs naturally assigned pro rata, as in the case above.	General price-level tends to equal that of cost. Joint-cost items imputed to units of product at discretion of entrepreneur.
All the producers in the district served by a single railroad system.		General level of railroads' charges tends to be lower than monopoly price. Discriminations between different shippers not removed. Beyond this, data insufficient for simple generalization.

for which allowance must be made, and which have yet to be thoroughly thrashed out in the field of economic discussion and controversy. By this is meant the "competition of markets" principle as applied to railways, a principle which is certainly different in its workings from typical competition, not only in degree, but in kind. This term is applied to the competition of two or more roads for the privilege of carrying to a common market goods produced on their respective lines, a kind of competition in which the railroad and the producer co-operate.

We have here the last and greatest extension in competing units which we must add to our scheme of variations from the competitive type. For the competition which governs railway rates is now the competition in ultimately marketing the goods which the railroad carries. In this the roads themselves are not directly involved, and those who are directly involved are legion.

120. SELLING BELOW COST: TOBACCO[1]

The Imperial Tobacco Company immediately began a campaign of active competition to check and frustrate the plans of the American Tobacco Company for strengthening its foothold in Great Britain. In March, 1902, the Imperial offered large bonuses to customers who would undertake not to sell American goods for a term of years. The American Tobacco Company, through the Ogden's Company, met this by offering to its British customers, for the next four years, its whole net profits on British business, and £200,000 a year besides. The offer was as follows:

> Commencing April 2, 1902, we will for the next four years distribute to such of our customers in the United Kingdom as purchase direct from us our entire net profits on the goods sold by us in the United Kingdom. In addition to the above, we will, commencing April 2, 1902, for the next four years, distribute to such of our customers in the United Kingdom as purchase direct from us the sum of £200,000 per year. The distribution of net profits will be made as soon after April 2, 1903, and annually thereafter, as the accounts can be audited, and will be in proportion to the purchases made during the year. The distribution as to the £200,000 per year will be made every three months, the first distribution to take place as soon after July 2, 1902, as accounts can be audited, and will be in proportion to the purchases during the three-months period. To participate in this offer we do not ask you to boycott the goods of any other manufacturer.

This offer had a marked effect in opening the British trade to American competition. As a countermove the Imperial Tobacco Company threatened to invade the American market, and in the summer of 1902 it was reported to be selecting sites for factories in this country. Before any definite steps were taken, however, to carry out this plan, an agreement was arrived at between the two great rival corporations which completely changed their position toward each other.

121. PRICE POLICIES OF THE DISTRIBUTER[2]

The producer who today enters the market to manufacture and sell a commodity in competition with other producers of substantially identical products has open to him three general price policies. He may adopt one of these to the exclusion of the others, or may use them in combination.

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[1] From the *Report of the Commissioner of Corporations on the Tobacco Industry*, Part I (1909), p. 169.

[2] Adapted from A. W. Shaw, "Some Problems in Market Distribution," *Quarterly Journal of Economics*, XXVI, 712–17 (August, 1912).

These three policies may be termed, (1) selling at the market minus; (2) selling at the market; and (3) selling at the market plus.

1. *Selling at the market minus* is that policy which aims to increase sales by reducing price. The distributer who markets his product at a price range below that established for the identical commodity as sold by other producers not only attracts consumers from other distributers, but also brings into the market as consumers certain of those whose demand was before unexpressed because the price level established for the commodity was above that warranted by their subjective valuation on the commodity.

This policy does not ordinarily involve a differentiation of the product from the stock product of like nature, nor the use of trade marks, brands, or trade names. The producer depends upon increased sales to give a reduced proportion of overhead expense and reduced costs of large scale production, thus increasing his area of profit. The producer appeals to the consumer mainly through the difference in price level.

This policy finds illustration in the selling policy of most department stores. It is the basis of bargain counter selling. In one class of department store it becomes the dominant policy. Some such stores base their business almost entirely on selling under the market, advertising the purchase of bankrupt stocks and mill clearances as making possible such price cutting.

And in nearly all department stores the manager will at times reduce the price upon a staple commodity below that at which his competitors are willing to sell. His increased sales, arising from custom drawn from his competitors and from new consumers brought into the market, decrease the proportion of overhead expense and enable him to purchase in larger quantities. His larger purchases put him in a position to force the producer to share with him the economies of large scale production. Often, indeed, he is able to take over the entire output of certain factories.

In the department store, moreover, the further element enters that customers attracted to purchase a staple commodity at less than the prevailing price will also purchase other commodities yielding a wider margin of profit.

2. *Selling at the market* has been the policy perhaps most characteristic of our scheme of distribution during the period when the stress

was on production. It is still a common policy in the marketing of staple goods.

This policy consists briefly in the acceptance of the market price existing for the commodity as a fixed condition. The producer does not seek to attract purchasers by maintaining a price level somewhat lower than that at which other producers of the same commodity are willing to sell, nor does he attempt to establish his commodity upon a new and higher price level as a distinct commodity. He recognizes the market price for such a commodity as something objective, and sells his commodity at the established level.

The acceptance of this price policy leaves open to the merchant-producer two general methods of increasing his area of profit. He may devote himself to a reduction in his cost of production by a better organization of his plant, or he may seek to increase his sales, thus giving economies of large scale production and a reduced proportion of overhead expenses.

Examples of the adoption of this policy and the use of the first method of increasing profits are found in the steel industry. The small independent manufacturer often accepts the market price of a given steel product as a fixed condition, sells his "share" of the market, and depends upon reducing his plant costs to increase his profits.

If the merchant-producer adopts this second method, he must, in general, differentiate his product from that of his competitors and build up a demand for his particular product. To do this he must depend upon the same means that would be used to establish his product as a distinct commodity upon a higher price level. Trade marks, brands, and trade names, coupled with niceties of finish, evenness in the quality, or more convenient packages, serve as the basis for an increased demand for the commodity upon the same price level as substantially identical products. When selling at the market, superior promptness in delivery may become a factor of great importance in increasing sales.

A recent development in the textile industry illustrates the adoption of the policy of selling at the market, combined with an attempt to increase sales at the market price by a differentiation of the product. Apparently the textile manufacturers who are beginning to brand their goods do not seek to establish a new price level for their product as a distinct commodity, but rather to increase their sales by building up a demand for their commodity as against the product of other manufacturers at the prevailing price level.

3. *Selling at the market plus* is perhaps the most characteristic price policy of modern distribution. The exceptionally able distributers have in recent years turned more and more to this policy. They refuse to accept as a fixed condition the market price for the commodities similar to those which they produce. They isolate their product, and establish it, practically as a new commodity, on a different price level.

The whole basis of the policy is the differentiation of a product from other goods of substantially like nature by improvements, minor or substantial, and the identification of the product by trade marks, brands, and trade names. This done, the producer stimulates a demand for his product by calling attention to stability of quality, niceties of finish, improvements in package, or like modifications. He appeals to that portion of the consuming public whose subjective valuation upon the stock commodity has left them a so-called "consumer's surplus" over the market price. The differentiated commodity is established on a new and higher price level, and is, to all intents and purposes, a new commodity.

It is this policy that forms the most severe test of the ability of the distributer. To succeed he must have an unusual equipment, including knowledge of human nature, of the psychological organization of the individual consumer, and must be able to give proper weight to such motives as social emulation and all the varied factors that enter into the subjective ratio of exchange of the consumer.

122. MONOPOLY PRICE: COFFEE VALORIZATION[1]

Coffee-drinking began to increase apace, especially in the United States. By 1890, the wholesale price of coffee was more than 17 cents a pound, and still only a little more than half the world's supply came from Brazil. For the next six years her planters enjoyed an intoxicating prosperity. During that period nearly all the three million inhabitants of the state of São Paulo "entirely gave up planting corn, rice, beans, everything they needed. They bought them, because coffee was so immensely profitable that they put all their labor in coffee."

It takes from three to five years for a new coffee tree to come into bearing, but by 1897 São Paulo's sudden rush into the field began to tell. That year the wholesale price of coffee was only a trifle above 7 cents a pound. It declined year by year, till between 1901 and 1903 it hung around 5 cents a pound. Hard times for the planters set in. The São Paulo government declared a tax on any new coffee plantations, hoping to drive the inhabitants back to raising corn and rice and beans, but it was a vain hope. They mortgaged their plantations and went right on raising larger coffee crops than all the rest of the world put together. Hard times grew harder. Mortgages began to be foreclosed right and left. Plantations were falling into foreign hands. The São Paulo planters were in ugly mood, and they demanded that the state government restore prosperity. There was grave danger of a revolution. In the face of it the government promised that it would itself buy up a large proportion of the next coffee crop at a price above the market. The only thing lacking was the ready cash. So the government appointed a special commissioner to find it.

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[1] From Robert Sloss, "Why Coffee Costs Twice as Much," *The World's Work*, XXIV, 198–205 (June, 1912)

He went first to Paris, to the Rothschilds, who had been the bankers of Brazil for sixty years. He was "flatly and at once refused." So was he by all the other bankers of Europe. Then the Commissioner bethought him of the coffee merchants. Who of them all could understand conditions in Brazil so well as Hermann Sielcken? —and he was conveniently resting at his place near Baden Baden. Thither the Commissioner repaired in August, 1906, and explained the situation.

"Well, what do you want us to do?" asked Hermann Sielcken.

"We want you to finance for us five to eight million bags of coffee," said the Commissioner, blandly.

Here was an adventure. Here was a proposition to lift bodily out of the market half as much coffee as the world's total production had averaged for the ten preceding years when prices had been so low. Presumably, if this were done, prices would be doubled. But Hermann Sielcken shook his head.

"No," he said, "there is not the slightest chance for it, not the slightest." And he pointed out that there would be "no financial assistance coming from any where" if the São Paulo planters kept on raising such ridiculously large crops of coffee.

The Commissioner assured him that the prospect was for smaller crops in future. Hermann Sielcken was not so sure about it.

"At a price low enough—," he mused. "I might be able to raise funds to pay 80 per cent on a value of 7 cents a pound."

The Commissioner was dismayed. His government had already promised to take coffee from the planters at about a cent a pound above the market, and the market then stood at nearly 8 cents. The government would have to dig to make up the difference. Hermann Sielcken's terms were the best that could be got, however, and the Commissioner accepted them.

Thus was launched the famous "Valorization Coffee Plan." From that time forth Hermann Sielcken's part in it became "a very active one." He approached a few large coffee merchants. Arbuckle Bros., his former business rivals, were the first to join him in this new kind of speculation. Two or three other firms followed. "We are going to finance it downward," Hermann Sielcken told them. He explained that if the Brazilians knew they could get enough money to buy six or eight million bags of coffee there would be no holding them, and that the merchants would simply be lending money to have the market put up suddenly on themselves.

So Hermann Sielcken drew up a contract. In it the merchants agreed to advance 80 per cent of the sum required to buy two million bags of coffee at 7 cents a pound. If the market went above 7 cents the government was to make no purchases. If it fell below 7 cents the government was to make good the difference to the merchants by cable. The government further agreed not to buy in any event more than 500,000 bags of coffee per month from October 1, 1906, to February 1, 1907, the principal crop season.

Before that season was well advanced the unexpected was happening. The Brazilians were harvesting the biggest coffee crop in the world's history. The market quickly dropped below 7 cents and went on falling. By the end of January, 1907, the São Paulo government had purchased the 2,000,000 bags of coffee. But that was only a drop in the bucket, and the government was clamoring for more money with which to stem the tide.

Hermann Sielcken and the merchants with him saw the wisdom of that. If the tide were not stemmed, it would spread abroad in the world so much coffee that the two million bags, the security of the merchants, would be worthless. Hermann Sielcken became very active, and "all over France and Germany and Belgium brought in every one who could help carry the load." And in little more than a year since he had told the Commissioner at Baden Baden that there was "not the slightest chance for it," Hermann Sielcken, with the aid of some forty merchants, had financed for São Paulo the purchase of 8,357,500 bags of coffee.

But São Paulo wasn't satisfied. During this first year of "Valorization," the Brazilian coffee crop had run to almost 20 million bags. Those planters who had been able to sell to the government had received about a cent a pound above the market, but they had been obliged to pay half of that back in the form of an export tax on coffee to enable the government to carry its loans. Toward the end of 1907, although São Paulo had lifted half the world's visible supply of coffee, the market stood only a trifle above 6 cents a pound. That was not at all the Brazilian planter's idea of prosperity.

Things grew no better during 1908. Although the next coffee crop turned out much smaller, the world's supply was still so far in excess of the demand that the market remained down. The São Paulo planters continued grumblingly to pay the export tax, but that all went as interest to the merchants. The government of São Paulo had spent not only the merchants' money but also all its own funds on valorization, and was rapidly going bankrupt. In desperation it sold, *sub rosa*, 1,300,000 bags of the coffee that was the merchants' security.

The merchants began to have misgivings. There was not the slightest prospect of São Paulo's being able to pay off their loans. If it came to throwing the purchased coffee on the low market, their securities would go for a mere song. Where was the profitable speculation into which Hermann Sielcken had led them? They made it plain that they didn't want to help carry the loan any longer. There were signs of mutiny aboard the good ship "Valorization" in 1908.

It was a year of especial activity for Hermann Sielcken. He went straight to the Rothschilds and proved to them what a profitable speculation it would be if only they and a few big bankers would take the places of the merchants in the Valorization Coffee Plan. He pointed out that there still remained more than 7 million bags of coffee as security after the surreptitious sales of the São Paulo government. Valued at 6½ cents a pound, the market price at that time, it would more than pay off the loans which stood against it. None of the merchants had advanced more then five and six-tenths cents a pound on it, most of them much less; on a great deal of it only 4 cents a pound had been advanced. Of course, the coffee would not bring 6½ cents if thrown on the market now. But if it could be held, it could be gradually and profitably disposed of during a period of, say, ten years—especially if something could really be done meanwhile to help the price of coffee.

The Rothschilds had some suggestions; they knew Brazil. They replied that such a loan could not be considered unless the coffee as security for it be shipped from Brazil and placed in the hands of bankers for safekeeping and subsequent disposal.

That would involve carrying charges, costs of management, etc. Then there would be nearly $4,000,000 in interest to pay the first year. The present export tax on coffee in São Paulo, less than one-half a cent a pound, was too low. São Paulo must about double it.

But, Hermann Sielcken pointed out, taxes are just what the planters were objecting to down there.

Then, the Rothschilds felt, they must be taught how to get rid of taxes. They are growing at present 85 per cent of the world's coffee. If, instead of constantly offering more coffee than was wanted, they saw to it that the world got somewhat less than it needed, other nations would pay all the taxes on coffee. The federal government of Brazil should interest itself in this matter. It collected a tax on coffee, called the *pouta*, 9 per cent of the market price in Brazilian ports. By doing something to help the price of coffee, Brazil would relieve her citizens of that burden and increase her own revenues at the same time. Let her pass a national law imposing a heavy penalty on anyone that planted a new coffee tree in Brazil, and let it be made effective by the appointment of federal inspectors to go strictly about the country and tear up any new trees. The result would take a little time, of course. But meanwhile São Paulo could do something at once to help the price of coffee. The state government could guarantee that not more than 9 million bags of her next coffee crop should be exported, nor more than 10 million of any succeeding crop.

Mr. Sielcken thought that these conditions would be agreed to, because the government was in such a bad way down in Brazil that they would do almost anything.

Well, then, if São Paulo would issue bonds, and if the federal government of Brazil would guarantee them, the Rothschilds would take a portion, provided other bankers would take the rest.

Hermann Sielcken hurried around to other bankers. In December, 1908, everything was settled. The São Paulo government got $75,000,000, promptly paid off the original loans of the merchants, and had a tidy little sum left to go on with.

So the coffee merchants were eliminated from valorization—all but Hermann Sielcken. When the six bankers closed the deal, they each appointed a representative, who, with one from the São Paulo government, comprised a committee charged with the future management of the affair. On this committee the only American was Hermann Sielcken, representing the American underwriters of the loan, a minor interest of but $10,000,000.

Thus completely refitted, "Valorization" put to sea again to sail in shoal waters no more. And Hermann Sielcken's part in it remained a very active function on the Bankers' Committee. The future of valorization depended upon being able to dispose favorably of the valorization coffee. Such of it as might be allotted to America was to be disposed of under the sole management of Hermann Sielcken. America drinks more than half of the world's coffee. The price of a commodity is fixed by the world's best market for it, and the price of coffee in Havre, Hamburg, London, and even in Brazil follows closely the price on the New York Exchange. To offer any considerable quantity of coffee on that exchange would naturally cause the market to break all over the world, and that would be bad for valorization. Hermann Sielcken's task was a delicate one.

No sooner had the Bankers' Committee taken hold of valorization than the price of coffee on the New York Exchange began to go up. It was 6½ cents all through December, 1908, when the deal was closed. By the middle of January, 1909, it had jumped to 7 cents; by the end of February it was 8 cents—although a larger crop than the preceding year was being harvested down in Brazil. São Paulo was worried about restricting exports, and proposed instead that she should make assurance sure by collecting a tenth of her coffee crop every year and dumping it into the sea. This the Bankers' Committee solemnly approved. A similar intention on the part of the Dutch long ago had been branded by Adam Smith in his *Wealth of Nations* as "a savage policy." The press of the world so branded this, and it was abandoned. Nevertheless, the price of coffee on the New York Coffee Exchange ruled higher for 1909 and the Bankers' Committee offered for sale 500,000 bags of valorization coffee, half of which was sold by Hermann Sielcken in New York.

The year 1910 opened in the midst of a season when a still larger coffee crop was being harvested in Brazil, and yet the market on the New York Coffee Exchange stood at 8⅝ cents. Again the annual sale of the Bankers' Committee was announced, 600,000 bags, half of which were disposed of in New York by Hermann Sielcken. Then in the middle of May he sailed for Europe and repaired to his country estate at Baden Baden.

He was no more than comfortably settled there than the price of coffee on the New York Coffee Exchange began to jump up, till on the last day of 1910 it stood at 13½ cents. It had stood at 6½ cents in December, 1908, when the bankers agreed to come into valorization. Here was a rise of more than 100 per cent in two years—a rise of 60 per cent in six months.

During those six months, Hermann Sielcken, though at his country seat in Germany, was active. Early in 1911, when the coffee market stood well above 13 cents, Hermann Sielcken made a flying trip to attend the meeting of the Bankers' Committee in Paris. There it was decided that they would sell double the usual quantity of coffee that year, 1,200,000 bags. Word came by cable that 600,000 bags had been sold by Hermann Sielcken in New York. We have his own word for it that those sales of 1911 cleaned up $25,000,000, "or one-third of the loan from less than one-sixth of the coffee."

The good ship "Valorization" will make port in 1912. She was chartered in 1908 for a cruise of ten years. She has accomplished it in little more than three. In that time she has picked up not only all of the $75,000,000 advanced by the bankers, but about $10,000,000 or more necessary to retire the São Paulo bonds at par; also another odd $10,000,000 to pay interest on the bonds; also all carrying charges on the purchased coffee and all salaries and expenses of management by the Bankers' Committee. In this brief adventure valorization has quietly gathered from the American breakfast table half the export tax on coffee, imposed in Brazil to make possible a loan the purpose of which was to put up the price of coffee on the world. From the same American breakfast table valorization has gathered half the *pouta*, the federal tax on coffee in Brazil, from which the government buys battleships and pays for campaigns in tea-drinking countries—especially England—to increase the use of coffee, while in Brazil everything is being done to decrease production and exports.

To the Brazilian planter, valorization brings, at present market prices, a profit of nearly 200 per cent on his coffee crop, over and above all costs of production, taxes, exchange, and transportation from the interior of Brazil to the coffee ports of the world.

Above all, "Valorization" has now, safely stowed away between decks, 4,400,000 bags of coffee, which, if the present market is maintained, and the stock is carefully sold away from the exchanges, is worth, to be exact, 14½ cents a pound.[1]

123. DISCRIMINATING PRICES: OIL[2]

The prices charged by the Standard Oil Company for petroleum products in the United States differ widely in different places according to the degree of competition or monopoly. This is true of all classes of petroleum products, but is most conspicuous and most easily demonstrated with respect to illuminating oil and gasoline. After deducting freight rates, which often constitute a large element in gross prices, extraordinary differences in prices appear (1) as among different states or sections of the country and (2) as among towns in the same general vicinity—for example, within the borders of a single state. These differences in price are to some extent due to differences in the cost of producing the oil and gasoline sold in different sections and in part to differences in the cost of marketing. In many cases, however, they are due solely to differences in the degree of competition, and in other cases a large part of the difference in price is due to difference in the degree of competition.

CONDITIONS MAKING PRICE DISCRIMINATION POSSIBLE

The methods of marketing oil products lend themselves to this practice of price discrimination. Illuminating oil and gasoline—and the same is in less measure true of other petroleum products—are not to any large extent sold at central markets or through jobbing concerns independent of the refiner. The Standard Oil Company sells most of its illuminating oil and gasoline in the United States directly to retail dealers at their own towns. They are largely delivered to retail dealers at their own stores by means of tank wagons. Consequently the prices of oil and gasoline are in general purely local prices. The retail dealer is ordinarily not familiar with prices charged in other towns or in central markets, but even if he were he could not take advantage of lower prices prevailing elsewhere to buy oil there and bring it into his own town. The cost of transporting oil in barrels, particularly in less than carload lots, is higher than in tank cars. Moreover, tank-wagon delivery is so much more convenient than barrel delivery that the retail dealer is ordinarily unwilling to buy barrel oil even at a lower price.

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[1] [In 1912 the United States government started a suit against those in this country who had entered into the coffee valorization plan on the ground that they were operating contrary to law. The suit threatened to involve the government in complications with Brazil, and eventually a compromise was agreed upon whereby the suit was to be withdrawn provided the coffee held in this country under the valorization plan was sold. In the spring of 1913 the government having been assured that the coffee had been sold withdrew the suit. Since that time the price of coffee has fallen to about 9 cents a pound (August, 1913).—EDITORS.]

[2] From the *Report of the Commissioner of Corporations on the Petroleum Industry*, Part II (1907), pp. 27–36.

The Standard Oil Company has established the system of tank-wagon delivery in the larger towns in all parts of the United States and in a large proportion of the smaller towns in the more populous sections. The business of its competitors is largely confined to a limited area and to a limited number of towns within that area. In towns and sections where there is no competition the Standard can charge monopoly prices, and by reason of the high prices thus obtained it can afford to reduce prices in competitive areas and towns to a point which leaves no profit for the independent concern.

Perhaps the most striking instance of sectional discrimination which has appeared during recent years is on the Pacific coast. In southern California there are a number of independent refineries. The Standard carries oil from its great refinery near San Francisco, several hundred miles by water and rail, and sells it in southern California for much less than the price at San Francisco. The average price, freight deducted, for the southern part of California in December, 1904, was 7.2 cents per gallon, while for the northern part of the state it averaged 12.4 cents per gallon. In Oregon, supplied from the same source, the price averaged 15.3 cents per gallon, and in Washington, 15.7 cents. The price in Washington and Oregon was thus more than twice as high as in Southern California for the same oil.

These differences in price among the several states and parts of states within the territory supplied from a single source much exceed the possible differences in marketing cost.

Evidence that differences in price are due to discrimination and not merely to differences in cost is found in the records of the Waters Pierce Oil Company, which show both the prices in individual towns and the margin of profit above delivered cost. For example, in the East Texas and Louisiana division of the Waters Pierce Company, in August, 1903, the margin between cost and selling price on Brilliant oil from tank wagon ranged from 1.92 cents to 5.59 cents. In August, 1904, the margin of profit ranged from 0.69 cents to 5.05 cents. The price charged by the Waters Pierce Oil Company for prime-white oil in iron barrels in Belleville, Ill., in April, 1904, was so low, on account of active competition, as to cause a loss to the company of 0.1 cent per gallon, while in numerous other towns in the same division of the company's territory (Missouri division) there was a margin of profit of from 4 to 5 cents per gallon.

124. THE BURDEN OF ADVERTISING COSTS[1]

I. THE ACTUAL OUTLAY

An editorial in *Printer's Ink* for May 4, 1911, p. 78, gives the following estimate of advertising outlay in the United States through some of the chief mediums in general use:

Newspaper advertising (retail and general)	$250,000,000
Direct mail advertising (circulars, form letters, etc.)	100,000,000
Magazine advertising	60,000,000
Farm and mail order	75,000,000
Novelty	30,000,000
Billposting	30,000,000
Outdoor—electric signs, etc.	25,000,000
Demonstration and sampling	18,000,000
Street car advertising	10,000,000
House, organs, etc.	7,000,000
Distributing	6,000,000
Theater programmes, curtain and miscellaneous	5,000,000
	$616,000,000

II. THE INCIDENCE OF THE COST

The question, "Who pays for advertising?" is often discussed and seldom with any profit. The fruitlessness of these discussions is more often due to lack of a clear statement of the problem than to any other single cause. Before any such discussion has gone far it often becomes clear that neither the term "pays" nor the term "advertising" represents identical ideas in the minds of the disputants.

It is generally agreed that the direct outlay for advertising in the United States runs far over $600,000,000 a year, and there is a very strong temptation to undertake to say categorically that that amount comes directly out of the pockets of some one element of the distribution system. We have been told many times that this bill is paid by the consumer. Somewhat less frequently, but with equal emphasis, it has been declared that the competitor who does not advertise foots the advertising bill of the man who does. And these are only two of many explanations.

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[1] From P. T. Cherington, *Advertising as a Business Force*, pp. 69, 429–34. Doubleday, Page & Co., 1913. (Copyrighted by the Associated Advertising Clubs of America.)

It will not be the purpose of this chapter to undertake to close this interesting question. The most that will be undertaken will be a suggestion as to what ought to be clearly understood by "paying" and by "advertising" before any attempt to answer the question is made.

Let us take the hypothetical case of a hardware manufacturer with a going plant and an established distribution, having among his products a patented stove-cover lifter retailing at 25 cents. This specialty never has been specially advertised, and it has been handled as a side line, sold in connection with other products of the concern. The output is 100,000 a year. The price to the retailer is 15 cents, and to the wholesaler 10 cents, and the actual cost of production based on an output of 100,000 is 7 cents each. The elements of production and distribution cost could then be represented roughly by Fig. A [p. 440].

Now suppose the manufacturer, who has been figuring on a net profit of 3 cents on each lifter, decides to spend two-thirds of this profit in advertising this lifter. Until that advertising produces some kind of a tangible result we can represent it as coming entirely out of the manufacturer's profits (Fig. B).

But suppose this outlay has been so judicious as to double the original demand and raise the output to 200,000 lifters instead of 100,000. By doubling his output the manufacturer can produce each lifter at a reduced cost. If we call this new cost 5 cents, instead of the original 7 cents, we see that the net profit on each lifter after paying for the advertising is restored to 3 cents (Fig. C) as it was before the advertising. But with the same net profit on each lifter and a doubled output the manufacturer's total profit is doubled.

At the same time the doubled business due to the advertising has produced similar effects in the distributing system. The wholesaler's expense of doing business on each lifter on a basis of 100,000 produced was 2 cents. But if the volume of the business be doubled (supposing the increase to be distributed proportionately among the wholesalers) each wholesaler handling the lifter will find some reduction in his cost of doing business on each lifter sold. His saving will not be as large as that of the manufacturer, but his expense will be reduced. And the same is true of the retailer (Fig. D).

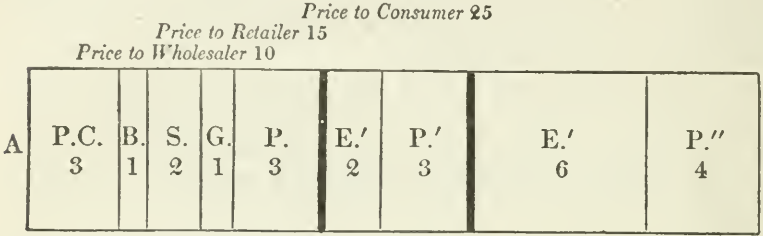

Figure A — Before advertising.

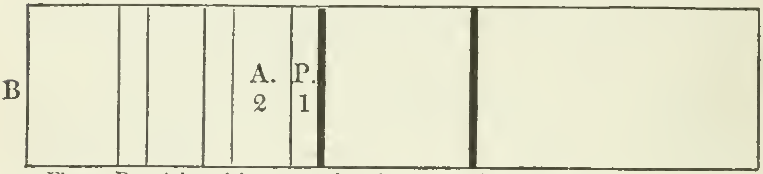

Figure B — Advertising cost taken from manufacturer's profit.

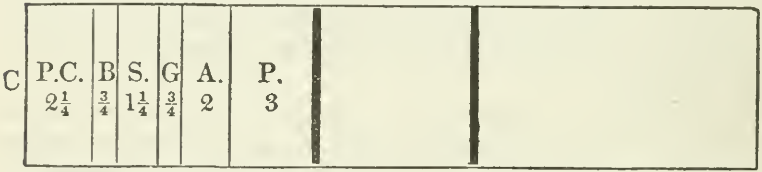

Figure C — Increased production lowers production costs absorbing advertising cost.

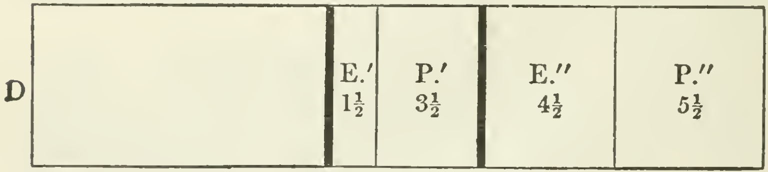

Figure D — Increased production lowers distribution costs.

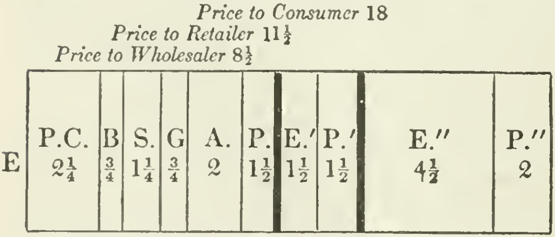

Figure E — Effect of lowered price on costs and profits.

		Output 100,000		Output 200,000		
		Fig. A	Fig. B	Fig. C	Fig. D	Fig. E
Manufacturer—						
P.C.	Prime cost	3	3	2¼	2¼	2¼
B.	Burden	1	1	¾	¾	¾
S.	Special selling	2	2	1¼	1¼	1¼
G.	General	1	1	¾	¾	¾
A.	Advertising	....	2	2	2	2
P.	Profit	3	1	3	3	1½
	Price to wholesaler	10	10	10	10	8½
Wholesaler—						
	Cost	10	10	10	10	8½
E′	Expense of doing business	2	2	....	1½	1½
P′	Profit	3	3	....	3½	1½
	Price to retailer	15	15	....	15	11½
Retailer—						
	Cost	15	15	....	15	11½
E″	Expense of doing business	6	6	....	4½	4½
P″	Profit	4	4	....	5½	2
	Price to consumer	25	25	....	25	18

Each of these cases, so far, presupposes that all prices are to be maintained—10 cents to the wholesaler, 15 cents to the retailer, and 25 cents to the consumer. So long as the prices are maintained and demand is not weakened each handler of the goods makes more total profit when the output is increased. Some of this increase is due to decreased selling expense per lifter, and some to the greater volume of sales. In the case of the wholesalers we see that the actual profit margin has increased from 3 to 3¼ cents on each lifter, and, with the number of sales doubled it appears that the wholesaler is making 7 cents out of this lifter trade where he formerly made 3 cents. By the same process the retailer's total profit has increased from 4 cents to two times 5½ cents, or 11 cents.

Thus the manufacturer is making as much as he did, before advertising, on each lifter, and twice as much on the entire business. And the wholesaler and retailer are each making more on each article and are selling twice as many. The consumer, on the other hand, is paying no more than he did before. Now the question is, who is "paying" for the advertising in this case?

And now suppose that, through one cause or another, the prices are reduced (Fig. E) to 18 cents to the consumer, 11½ cents to the retailer and $8\frac{1}{2}$ cents to the wholesaler. The output now being at 200,000 with corresponding costs, the price reduction leaves to each of these handlers of the goods, and to the manufacturer, only one half of the profits they originally made on each piece. But each is selling twice as many as he did originally and hence is making total profits which are exactly the same as those they were making before the advertising. The consumer, however, is now paying 7 cents less for lifters than he did originally. The question as to who "pays" now takes on an entirely different aspect.

We now see that the problem of "paying" for the advertising has to do, not only with the actual outlay for advertising, but also with the relation between that outlay and the reduction in manufacturing and distribution costs coming from the increased demand which that outlay produces.

And this case takes no account of the potential future reductions of the same kind which may follow from new demand which has been aroused by the advertising but which is not yet converted into sales. Nor has any account been taken of the effect of this stimulation of demand for one single manufacturer's output upon the trade of his competitors. And these are only two out of many other factors which have been left out of this case for the sake of making this one point clear.[1] No one can say who has paid for any piece of advertising outlay until he knows what has been its effect on demand—and consequently on production and distribution costs and on production and distribution profits.

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[1] Throughout this case we have given attention only to advertising by the producer. It will make profitable exercise work to develop similar diagrams showing the effects of advertising by wholesalers and retailers.

X. MONEY AND PRICES

125. EXCHANGE BY BARTER[1]

Some years since, Mademoiselle Zélie, a singer of the Théâtre Lyrique at Paris, made a professional tour round the world, and gave a concert in the Society Islands. In exchange for an air from *Norma* and a few other songs, she was to receive a third part of the receipts. When counted, her share was found to consist of three pigs, twenty-three turkeys, forty-four chickens, five thousand cocoa-nuts, besides considerable quantities of bananas, lemons, and oranges. At the Halle in Paris, as the prima donna remarks in her lively letter, printed by M. Wolowski, this amount of live stock and vegetables might have brought four thousand francs, which would have been good remuneration for five songs. In the Society Islands, however, pieces of money were very scarce; and as Mademoiselle could not consume any considerable portion of the receipts herself, it became necessary in the mean time to feed the pigs and poultry with the fruit.

When Mr. Wallace was traveling in the Malay Archipelago, he seems to have suffered rather from the scarcity than the superabundance of provisions. In his most interesting account of his travels, he tells us that in some of the islands, where there was no proper currency, he could not procure supplies for dinner without a special bargain and much chaffering upon each occasion. If the vendor of fish or other coveted eatables did not meet with the sort of exchange desired, he would pass on, and Mr. Wallace and his party had to go without their dinner. It therefore became very desirable to keep on hand a supply of articles, such as knives, pieces of cloth, arrack, or sago cakes, to multiply the chance that one or other article would suit the itinerant merchant.

The first difficulty in barter is to find two persons whose disposable possessions mutually suit each other's wants. There may be many people wanting, and many possessed of those things wanted; but to allow of an act of barter, there must be a double coincidence, which will rarely happen. A hunter having returned from a successful chase has plenty of game, and may want arms and ammunition to renew the chase. But those who have arms may happen to be well supplied with game, so that no direct exchange is possible. In civilized society the owner of a house may find it unsuitable, and may have his eye upon another house exactly fitted to his needs. But even if the owner of this second house wishes to part with it at all, it is exceedingly unlikely that he will exactly reciprocate the feelings of the first owner, and wish to barter houses. Sellers and purchasers can only be made to fit by the use of some commodity, some *marchandise banale*, as the French call it, which all are willing to receive for a time, so that what is obtained by sale in one case, may be used in purchase in another. This common commodity is called a *medium of exchange*, because it forms a third or intermediate term in all acts of commerce.

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[1] From W. S. Jevons, *Money and the Mechanism of Exchange*, chap. i.

A second difficulty arises in barter. At what rate is any exchange to be made? If a certain quantity of beef be given for a certain quantity of corn, and in like manner corn be exchanged for cheese, and cheese for eggs, and eggs for flax, and so on, still the question will arise —How much beef for how much flax, or how much of any one commodity for a given quantity of another? In a state of barter the price-current list would be a most complicated document, for each commodity would have to be quoted in terms of every other commodity, or else complicated rule-of-three sums would become necessary. Between one hundred articles there must exist no less than 4,950 possible ratios of exchange, and all these ratios must be carefully adjusted so as to be consistent with each other, else the acute trader will be able to profit by buying from some and selling to others.

All such trouble is avoided if any one commodity be chosen, and its ratio of exchange with each other commodity be quoted. Knowing how much corn is to be bought for a pound of silver, and also how much flax for the same quantity of silver, we learn without further trouble how much corn exchanges for so much flax. The chosen commodity becomes a *common denominator* or *common measure of value*, in terms of which we estimate the values of all other goods, so that their values become capable of the most easy comparison.

A third, but it may be a minor, inconvenience of barter arises from the impossibility of dividing many kinds of goods. A store of corn, a bag of gold dust, a carcase of meat, may be portioned out, and more or less may be given in exchange for what is wanted. But the tailor, as we are reminded in several treatises on political economy, may have a coat ready to exchange, but it much exceeds in value the bread which he wishes to get from the baker, or the meat from the butcher. He cannot cut the coat up without destroying the value of his handiwork.

It is obvious that he needs some medium of exchange, into which he can temporarily convert the coat, so that he may give a part of its value for bread, and other parts for meat, fuel, and daily necessaries, retaining perhaps a portion for future use. Further illustration is needless; for it is obvious that we need a means of dividing and distributing value according to our varying requirements.

126. THE EARLY HISTORY OF MONEY[1]

Living in civilized communities, and accustomed to the use of coined metallic money, we learn to identify money with gold and silver; hence spring hurtful and insidious fallacies. It is always useful, therefore, to be reminded of the truth, so well stated by Turgot, that every kind of merchandise has the two properties of measuring value and transferring value. It is entirely a question of degree what commodities will in any given state of society form the most convenient currency, and this truth will be best impressed upon us by a brief consideration of the very numerous things which have at one time or other been employed as money. Though there are many numismatists and many political economists, the natural history of money is almost a virgin subject, upon which I should like to dilate; but the narrow limits of my space forbid me from attempting more than a brief sketch of the many interesting facts which may be collected.

CURRENCY IN THE HUNTING STATE

Perhaps the most rudimentary state of industry is that in which subsistence is gained by hunting wild animals. The proceeds of the chase would, in such a state, be the property of most generally recognized value. The meat of the animals captured would, indeed, be too perishable in nature to be hoarded or often exchanged; but it is otherwise with the skins, which, being preserved and valued for clothing, became one of the earliest materials of currency. Accordingly, there is abundant evidence that furs or skins were employed as money in many ancient nations. They serve this purpose to the present day in some parts of the world.

In the Book of Job (2:4) we read, "Skin for skin, yea, all that a man hath will he give for his life"; a statement clearly implying that skins were taken as the representative of value among the ancient oriental nations. Etymological research shows that the same may be said of the northern nations from the earliest times. In the Esthonian language the word *râha* generally signifies money, but its equivalent in the kindred Lappish tongue has not yet altogether lost the original meaning of skin or fur. Leather money is said to have circulated in Russia as late as the reign of Peter the Great, and it is worthy of notice that classical writers have recorded traditions to the effect that the earliest currency used at Rome, Lacedæmon, and Carthage was formed of leather.

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[1] From W. S. Jevons, *Money and the Mechanism of Exchange*, chap. iv.

We need not go back, however, to such early times to study the use of rude currencies. In the traffic of the Hudson's Bay Company with the North American Indians, furs, in spite of their differences of quality and size, long formed the medium of exchange. It is very instructive, and corroborative of the previous evidence to find that, even after the use of coin had become common among the Indians, the skin was still commonly used as the money of account. Thus Whymper says, "a gun, nominally worth about forty shillings, bought twenty 'skins.' This term is the old one employed by the company. One skin (beaver) is supposed to be worth two shillings, and it represents two marten, and so on. You heard a great deal about 'skins' at Fort Yukon, as the workmen were also charged for clothing, etc, in this way."

CURRENCY IN THE PASTORAL STATE

In the next higher stage of civilization, the pastoral state, sheep and cattle naturally form the most valuable and negotiable kind of property. They are easily transferable, convey themselves about, and can be kept for many years, so that they readily perform some of the functions of money.

We have abundance of evidence, traditional, written, and etymological, to show this. In the Homeric poems oxen are distinctly and repeatedly mentioned as the commodity in terms of which other objects are valued. The arms of Diomed are stated to be worth nine oxen, and are compared with those of Glaucos, worth one hundred. The tripod, the first prize for wrestlers in the 23d *Iliad*, was valued at twelve oxen, and a woman captive, skilled in industry, at four. It is peculiarly interesting to find oxen thus used as the common measure of value, because from other passages it is probable, as already mentioned, that the precious metals, though as yet uncoined, were used as a store of value, and occasionally as a medium of exchange. The several functions of money were thus clearly performed by different commodities at this early period.

In several languages the name for money is identical with that of some kind of cattle or domesticated animal. It is generally allowed that *pecunia*, the Latin word for money, is derived from *pecus*, cattle. From the *Agamemnon* of Æschylus we learn that the figure of an ox was the sign first impressed upon coins, and the same is said to have been the case with the earliest issues of the Roman *As*. Numismatic researches fail to bear out these traditions, which were probably invented to explain the connection between the name of the coin and the animal. A corresponding connection between these notions may be detected in much more modern languages. Our common expression for the payment of a sum of money is *fee*, which is nothing but the Anglo-Saxon *feoh*, meaning alike money and cattle, a word cognate with the German *vieh*, which still bears only the original meaning of cattle. As I am informed by my friend Professor Theodores, the same connection of ideas is manifested in the Greek word for property, κτῆμα, which means alike possession, flock, or cattle, and is referred by Grimm to an original verb κέτω or κετάω, to feed cattle. It is even supposed by Grimm that the same root reappears in the Teutonic and Scandinavian languages, in the Gothic *skatts*, the modern High-German *schatz*, the Anglo-Saxon *scät*, or *sceat*, the ancient Norsk *skat*, all meaning wealth, property, treasure, tax, or tribute, especially in the shape of cattle. This theory is confirmed by the fact that the Frisian equivalent, *sket*, has retained the original meaning of cattle to the present day. In the Norsk, Anglo-Saxon, and English, *scat* or *scot* has been specialized to denote tax or tribute.

In the ancient German codes of laws, fines and penalties are actually defined in terms of live-stock. In the Zend Avesta, as Professor Theodores further informs me, the scale of rewards to be paid to physicians is carefully stated, and in every case the fee consists in some sort of cattle. The fifth and sixth lectures in Sir H. S. Maine's most interesting work on "The Early History of Institutions," are full of curious information showing the importance of live-stock in a primitive state of society. Being counted *by the head*, the kine was called *capitale*, whence the economical term *capital*, the law term *chattel*, and our common name *cattle*.

In countries where slaves form one of the most common and valuable possessions, it is quite natural that they should serve as the medium of exchange like cattle. Pausanias mentions their use in this way, and in Central Africa and some other places where slavery still flourishes, they are the medium of exchange along with cattle and ivory tusks. According to Earl's account of New Guinea, there is in that island a large traffic in slaves, and a slave forms the unit of value. Even in England slaves are believed to have been exchanged at one time in the manner of money.

ARTICLES OF ORNAMENT AS CURRENCY

A passion for personal adornment is one of the most primitive and powerful instincts of the human race, and as articles used for such purposes would be durable, universally esteemed and easily transferable, it is natural that they should be circulated as money. The wampumpeag of the North American Indians is a case in point, as it certainly served as jewelry. It consisted of beads made of the ends of black and white shells, rubbed down and polished, and then strung into belts or necklaces, which were valued according to their length, and also according to their color and luster, a foot of black peag being worth two feet of white peag. It was so well established as currency among the natives that the Court of Massachusetts ordered in 1649 that it should be received in the payment of debts among settlers to the amount of forty shillings. It is curious to learn, too, that just as European misers hoard up gold and silver coins, the richer Indian chiefs secreted piles of wampum beads, having no better means of investing their superfluous wealth.

Exactly analogous to this North American currency is that of the cowry shells, which, under one name or another—chamgos, zimbis, bouges, porcelanes, etc.—have long been used in the East Indies as small money. In British India, Siam, the West Coast of Africa, and elsewhere on the tropical coasts, they are still used as small change, being collected on the shores of the Maldive and Laccadive Islands, and exported for the purpose. Their value varies somewhat, according to the abundance of the yield, but in India the current rate used to be about 5,000 shells for one rupee, at which rate each shell is worth about the two-hundredth part of a penny. Among our interesting fellow-subjects, the Fijians, whale's teeth served in the place of cowries, and white teeth were exchanged for red teeth somewhat in the ratio of shillings to sovereigns.

Among other articles of ornament or of special value used as currency may be mentioned yellow amber, engraved stones, such as the Egyptian scarabaei, and tusks of ivory.

CURRENCY IN THE AGRICULTURAL STATE

Many vegetable productions are at least as well suited for circulation as some of the articles which have been mentioned. It is not surprising to find, then, that among a people supporting themselves by agriculture, the more durable products were thus used. Corn has been the medium of exchange in remote parts of Europe from the time of the ancient Greeks to the present day. In Norway corn is even deposited in banks, and lent and borrowed. What wheat, barley, and oats are to Europe, such is maize in parts of Central America, especially Mexico, where it formerly circulated. In many of the countries surrounding the Mediterranean, olive oil is one of the commonest articles of produce and consumption; being, moreover, pretty uniform in quality, durable, and easily divisible, it has long served as currency in the Ionian Islands, Mytilene, some towns of Asia Minor, and elsewhere in the Levant.

Just as cowries circulate in the East Indies, so cacao nuts, in Central America and Yucatan, form a perfectly recognized and probably an ancient fractional money. Travelers have published many distinct statements as to their value, but it is impossible to reconcile these statements without supposing great changes of value either in the nuts or in the coins with which they are compared. In 1521, at Caracas, about thirty cacao nuts were worth one penny English, whereas recently ten beans would go to a penny, according to Squier's statements. In the European countries, where almonds are commonly grown, they have circulated to some extent like the cacao nuts, but are variable in value, according to the success of the harvest.

It is not only, however, as a minor currency that vegetable products have been used in modern times. In the American settlements and the West India Islands, in former days, specie used to become inconveniently scarce, and the legislators fell back upon the device of obliging creditors to receive payment in produce at stated rates. In 1618, the Governor of the Plantations of Virginia ordered that tobacco should be received at the rate of three shillings for the pound weight, under the penalty of three years' hard labor. We are told that, when the Virginia Company imported young women as wives for the settlers, the price per head was one hundred pounds of tobacco, subsequently raised to one hundred and fifty. As late as 1732, the legislature of Maryland made tobacco and Indian corn legal tenders; and in 1641 there were similar laws concerning corn in Massachusetts. The governments of some of the West India Islands seem to have made attempts to imitate these peculiar currency laws, and it was provided that the successful plaintiff in a lawsuit should be obliged to accept various kinds of raw produce, such as sugar, rum, molasses, ginger, indigo, or tobacco. . . .

The perishable nature of most kinds of animal food prevents them from being much used as money; but eggs are said to have circulated in the Alpine villages of Switzerland, and dried codfish have certainly acted as currency in the colony of Newfoundland.

MANUFACTURED AND MISCELLANEOUS ARTICLES AS CURRENCY

The enumeration of articles which have served as money may already seem long enough for the purposes in view. I will, therefore, only add briefly that a great number of manufactured commodities have been used as a medium of exchange in various times and places. Such are the pieces of cotton cloth, called *Guinea pieces*, used for traffic upon the banks of the Senegal, or the somewhat similar pieces circulated in Abyssinia, the Soulou Archipelago, Sumatra, Mexico, Peru, Siberia, and among the Veddahs. It is less easy to understand the origin of the curious straw money which circulated until 1694 in the Portuguese possessions in Angola, and which consisted of small mats called libongos, woven out of rice straw, and worth about 1½*d.* each. These mats must have had, at least originally, some purpose apart from their use as currency, and were perhaps analogous to the fine woven mats so much valued by the Samoans, and also treated by them as a medium of exchange.

Salt has been circulated not only in Abyssinia, but in Sumatra, Mexico, and elsewhere. Cubes of benzoin gum or beeswax in Sumatra, red feathers in the Islands of the Pacific Ocean, cubes of tea in Tartary, iron shovels or hoes among the Malagasy are other peculiar forms of currency. The remarks of Adam Smith concerning the use of handmade nails as money in some Scotch villages will be remembered by many readers, and need not be repeated. M. Chevalier has adduced an exactly corresponding case from one of the French coalfields.

Were space available it would be interesting to discuss the not improbable suggestion of Boucher de Perthes, that, perhaps, after all, the finely worked stone implements now so frequently discovered were among the earliest mediums of exchange. Some of them are certainly made of jade, nephrite, or other hard stones, only found in distant countries, so that an active traffic in such implements must have existed in times of which we have no records whatever.

There are some obscure allusions in classical authors to a wooden money circulating among the Byzantines, and to a wooden talent used at Antioch and Alexandria, but in the absence of fuller information as to their nature, it is impossible to do more than mention them.

127. A MONETARY CHRONOLOGY[1]

1786.—Establishment of the double standard in the United States with a ratio of 1 to 15.25; that is, on the basis of 123.134 grains of fine gold for the half eagle, or $5 piece, and 375.64 grains of fine silver for the dollar, without any actual coinage.

1792.—Adoption of the ratio of 1 to 15 and establishment of a mint with free and gratuitous coinage in the United States; the silver dollar equal to 371¼ grains fine, the eagle to 247½ grains fine.

1792–1812.—The First Bank of the United States. It rendered good service as the fiscal agent of the government and as a check upon issues by state banks. This latter service was performed by presenting state bank notes for redemption.

1805.—Ceased coining the silver dollar. By the operation of Gresham's law the most of those already coined had gone to the West Indies. The coinage of the silver dollar was renewed in 1836.

1812–16.—Period of rapid expansion of state banks.

1816–36.—The Second Bank of the United States. This bank rendered service similar to the First.

1834.—Substitution of the ratio of 1 to 16 for that of 1 to 15 in the United States by reducing the weight of the eagle, ten-dollar gold piece, from 270 grains to 258 grains.

In 1837 the fineness of the United States gold coins was raised from .899,225 to .900, and the silver coins from .8924 to .900, giving a ratio of 1 to 15.988, and fixing the standard weight of the silver dollar at 412½ grains.

1847.—Discovery of the gold mines of California.

1851.—Discovery of the gold mines of Australia.

1853.—Lowering of the weight of silver pieces of less value than $1, to the extent of 7 per cent in the United States, and limitation of their legal-tender power to $5.

1853.—Maximum of the production of gold reached in California, when it amounted to $65,000,000.

1861.—The United States Government issued "demand notes."

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[1] Adapted from *Circular No. 52*, United States Treasury Department (1912), pp. 41–45.

1862.—The United States Government began to issue the "Legal Tender" or "greenbacks."

1862-79.—The period of suspension of specie payments.

1863.—National bank act passed.

1866.—An act to provide for the gradual retiring of the greenbacks. This act was suspended by the act of 1868.

1873.—Panic. In response to popular demand 26,000,000 of the canceled greenbacks were re-issued.

1873.—Increase of the intrinsic value of the subsidiary coins of the United States. Replacing of the double standard by the gold standard. Reduction of the cost of coinage of gold to one-fifth per cent, the total abolition of which charge was decreed in 1875. Creation of a trade dollar of 420 grains with a fineness of .900.

1875.—Act providing for resumption of specie payments, January 1, 1879, was passed. This act provided for the reduction of the greenbacks to $300,000,000. The act of 1878 stopped this reduction. The amount then, as now, outstanding was $346,681,016.

1878.—Act of United States Congress providing for the purchase, from time to time, of silver bullion, at the market price thereof, of not less than $2,000,000 worth per month as a minimum, nor more than $4,000,000 worth per month as a maximum, and its coinage as fast as purchased into silver dollars of 412½ grains. The coinage of silver on private account prohibited.

1879.—Resumption of specie payments.

1890.—United States—Repeal of the act of February 28, 1878, commonly known as Bland-Allison law, and substitution of authority for purchase of 4,500,000 fine ounces of silver each month, to be paid for by issue of Treasury Notes ("the Treasury Notes of 1890") payable in coin.

1893.—Panic. The "endless chain" of redemption of United States notes at the Treasury. Repeal of the purchasing clause of the act of 1890.

1900.—The gold standard formally adopted in the United States.

1908.—An act providing for emergency note issue by national banks.

1913.—The Federal Reserve Act.

128. HISTORY OF COINS AND CURRENCY OF THE UNITED STATES[1]

In 1786 the Congress of the Confederation chose as the monetary unit of the United States the dollar of 375.64 grains of pure silver. This unit had its origin in the Spanish piaster or milled dollar, which constituted the basis of the metallic circulation of the English colonies in America. It was never coined, there being at that time no mint in the United States.

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[1] From *Circular No. 52*, United States Treasury Department (1912), pp. 25-27.

The act of April 2, 1792, established the first monetary system of the United States. The bases of the system were: The gold dollar or unit, containing 24.75 grains of pure gold, and stamped in pieces of $10, $5, and $2½, denominated, respectively, eagles, half eagles, and quarter eagles; the silver dollar or unit, containing 371.25 grains of pure silver. A mint was established. The coinage was unlimited, and there was no mint charge. The ratio of gold to silver in coinage was 1 to 15. Both gold and silver were legal tender. The standard was double.

The act of 1792 undervalued gold, which was therefore exported. The act of June 28, 1834, was passed to remedy this, by changing the mint ratio between the metals to 1 to 16.002. This latter act fixed the weight of the gold dollar at 25.8 grains, but lowered the fineness from 0.916⅔ to 0.899225. The fine weight of the gold dollar was thus reduced to 23.2 grains. The act of 1834 undervalued silver, as that of 1792 had undervalued gold, and silver was attracted to Europe by the more favorable ratio of 1 to 15½. The act of January 18, 1837, was passed to make the fineness of the gold and silver coins uniform. The legal weight of the gold dollar was fixed at 25.8 grains and its fine weight at 23.22 grains. The fineness was therefore changed by this act to 0.900 and the ratio to 1 to 15.988+.

Silver continued to be exported. The act of February 21, 1853, reduced the weight of the silver coins of a denomination less than $1, which the acts of 1792 and 1837 had made exactly proportional to the weight of the silver dollar, and provided that they should be legal tender to the amount of only $5. Under the acts of 1792 and 1837 they had been full legal tender. By the act of 1853 the legal weight of the half dollar was reduced to 192 grains and that of the other fractions of a dollar in proportion. The coinage of the fractional parts of the dollar was reserved to the Government.

The act of February 12, 1873, provided that the unit of value of the United States should be the gold dollar of the standard weight of 25.8 grains, and that there should be coined, besides, the following gold coins: A quarter eagle, or 2½-dollar piece; a 3-dollar piece; a half eagle, or 5-dollar piece; an eagle, or 10-dollar piece, and a double eagle, or 20-dollar piece, all of a standard weight proportional to that of the dollar piece. These coins were made legal tender in all payments at their nominal value when not below the standard weight and limit of tolerance provided in the act for the single piece, and when reduced in weight they should be legal tender at a valuation in proportion to their actual weight. The silver coins provided for by the act were a trade dollar; a half dollar, or 50-cent piece; a quarter dollar; and a 10-cent piece; the weight of the trade dollar to be 420 grains troy; the half dollar, 12½ grams; the quarter dollar and the dime, respectively, one-half and one-fifth of the weight of the half dollar. These silver coins were made legal tender at their nominal value for any amount not exceeding $5 in any one payment. The charge for converting standard gold bullion into coin was fixed at one-fifth of 1 per cent. Owners of silver bullion were allowed to deposit it at any mint of the United States, to be formed into bars or into trade dollars, and no deposit of silver for other coinage was to be received.

Section 2 of the joint resolution of July 22, 1876, recited that the trade dollar should not thereafter be legal tender, and that the Secretary of the Treasury should be authorized to limit the coinage of the same to an amount sufficient to meet the export demand for it. The act of February 19, 1887, retired the trade dollar and prohibited its coinage; that of September 26, 1890, discontinued the coinage of the 1-dollar and 3-dollar gold pieces.

The act of February 28, 1878, directed the coinage of silver dollars of the weight of 412½ grains troy, of standard silver, as provided in the act of January 18, 1837, and that such coins, with all standard silver dollars theretofore coined, should be legal tender at their nominal value for all debts and dues, public and private, except where otherwise expressly stipulated in the contract.

The Secretary of the Treasury was authorized and directed by the first section of the act to purchase from time to time silver bullion at the market price thereof, not less than $2,000,000 worth nor more than $4,000,000 worth per month, and to cause the same to be coined monthly, as fast as purchased, into such dollars. A subsequent act, that of July 14, 1890, enacted that the Secretary of the Treasury should purchase silver bullion to the aggregate amount of 4,500,000 ounces, or so much thereof as might be offered, each month, at the market price thereof, not exceeding $1 for 371.25 grains of pure silver, and to issue in payment thereof Treasury notes of the United States, such notes to be redeemable by the Government, on demand, in coin, and to be legal tender in payment of all debts, public and private, except where otherwise expressly stipulated in the contract. The act directed the Secretary of the Treasury to coin each month 2,000,000 ounces of the silver bullion purchased under the provisions of the act into standard silver dollars until the 1st day of July, 1891, and thereafter as much as might be necessary to provide for the redemption of the Treasury notes issued under the act. The purchasing clause of the act of July 14, 1890, was repealed by the act of November 1, 1893.

The act of June 9, 1879, made the subsidiary silver coins of the United States legal tender to the amount of $10. The minor coins are legal tender to the amount of 25 cents.

The act of March 14, 1900, declares that the dollar, consisting of 25.8 grains of gold .900 fine "shall be the standard unit of value," and makes it the duty of the Secretary of the Treasury to maintain at a parity of value with this standard all forms of money issued or coined by the United States.

129. REDEMPTION OF UNITED STATES MONEY[1]

Gold coins and standard silver dollars, being standard coins of the United States, are not "redeemable."

Subsidiary coins and *minor coins* may be presented, in sums or multiples of $20, to the Treasurer of the United States or to an assistant treasurer for redemption or exchange into lawful money.

United States notes are redeemable in United States gold coin in any amount by the Treasurer and all the assistant treasurers of the United States.

Treasury notes of 1890 are redeemable in United States gold coin in any amount by the Treasurer and all the assistant treasurers of the United States.

National-bank notes are redeemable in lawful money of the United States by the Treasurer, but not by the assistant treasurers. They are also redeemable at the bank of issue. In order to provide for the redemption of its notes when presented, every national bank is required by law to keep on deposit with the Treasurer a sum equal to 5 per cent of its circulation.

Gold certificates, being receipts for gold coin, are redeemable in such coin by the Treasurer and all assistant treasurers of the United States.

Silver certificates are receipts for standard silver dollars deposited, and are redeemable in such dollars only.

"Coin" obligations of the government are redeemed in gold coin when gold is demanded and in silver when silver is demanded.

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[1] From *Circular No. 52*, United States Treasury Department (1912), pp. 40–41. [For Federal Reserve Notes see Selection 159.—EDITORS.]

130. LEGAL-TENDER QUALITIES OF UNITED STATES MONEY[1]

There are ten different kinds of money in circulation in the United States, namely, gold coins, standard silver dollars, subsidiary silver, gold certificates, silver certificates, Treasury notes issued under the act of July 14, 1890, United States notes (also called greenbacks and legal tenders), national-bank notes, and nickel and bronze coins. These forms of money are all available as circulation. While they do not all possess the full legal-tender quality, each kind has such attributes as to give it currency. The status of each kind is as follows:

Gold coin is legal tender at its nominal or face value for all debts, public and private, when not below the standard weight and limit of tolerance prescribed by law; and when below such standard and limit of tolerance it is legal tender in proportion to its weight.

Standard silver dollars are legal tender at their nominal or face value in payment of all debts, public and private, without regard to the amount, except where otherwise expressly stipulated in the contract.

Subsidiary silver is legal tender for amounts not exceeding $10 in any one payment.

Treasury notes of the act of July 14, 1890, are legal tender for all debts, public and private, except where otherwise expressly stipulated in the contract.

United States notes are legal tender for all debts, public and private, except duties on imports and interest on the public debt.[2]

Gold certificates, silver certificates, and national-bank notes are *not* legal tender, but both classes of certificates are receivable for all public dues, while national-bank notes are receivable for all public dues except duties on imports, and may be paid out by the Government for all salaries and other debts and demands owing by the United States to individuals, corporations, and associations within the United States, except interest on the public debt and in redemption of the national currency. All national banks are required by law to receive the notes of other national banks at par.

The minor coins of nickel and copper are legal tender to the extent of 25 cents.

Foreign coins are not legal tender.—Section 3584 of the Revised Statutes of the United States provides that no foreign coins shall be a legal tender in the United States.

[1] From *Circular No. 52*, United States Treasury Department (1912), pp. 28–29.

[2] United States notes, upon resumption of specie payments, January 1, 1879, became acceptable in payment of duties on imports and have been freely received on that account since the above date, but the law has not been changed.

131. STATEMENT OF UNITED STATES MONEY IN CIRCULATION—JULY 1, 1913[1]

	General Stock of Money in the United States		Held in Treasury as Assets of the Government*		Money in Circulation			
	June 2, 1913	July 1, 1913	June 2, 1913	July 1, 1913	June 2, 1913	July 1, 1913	July 1, 1912	January 1, 1879
Gold coin (including bullion in Treasury).....	$1,861,369,895	$1,868,790,860	$171,958,297	$173,084,093	$610,004,429	$608,979,598	$607,445,193	$96,262,850
Gold certificates†	....	....	81,819,775	78,194,420	997,587,394	1,008,532,749	942,692,184	21,189,280
Standard silver dollars........	565,590,020	565,618,020	10,427,137	9,991,659	72,095,883	72,076,361	70,330,726	5,790,721
Silver certificates†	....	....	15,685,730	13,360,808	467,381,270	470,189,192	469,049,230	413,360
Subsidiary silver	175,299,876	175,471,210	21,179,158	20,765,511	154,120,718	154,705,699	141,231,758	67,982,601
Treasury notes of 1890.........	2,688,000	2,660,000	9,639	3,219	2,678,361	2,656,781	2,919,095	....
United States notes.........	346,681,016	346,681,016	7,845,947	8,757,310	338,835,069	337,923,706	337,922,123	‡310,288,511
National - bank notes.........	755,294,066	759,157,906	40,620,480	42,895,985	714,673,586	716,261,921	705,196,304	314,339,398
Total.......	$3,706,922,873	$3,718,379,012	$349,546,163	$347,053,005	$3,357,376,710	$3,371,326,007	$3,276,786,613	$816,266,721

Population of continental United States July 1, 1913, estimated at 97,337,000; circulation per capita, $34.64.

* This statement of money held in the Treasury as assets of the government does not include deposits of public money in national bank depositaries to the credit of the Treasurer of the United States, amounting to $74,160,472.33.

† For redemption of outstanding certificates an exact equivalent in amount of the appropriate kinds of money is held in the Treasury, and is not included in the account of money held as assets of the government.

‡ Includes $33,190,000 currency certificates, Act June 8, 1872.

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[1] *Circulation Statement* issued by the Secretary of the Treasury.

132. PRINCIPLES OF TOKEN MONEY[1]

As now understood and practiced, a correct system of token money would conform to the following principles:

1. Such a reduction in weight and value below the standard unit as would prevent exportation and yet not place a premium on counterfeiting.
2. Coinage only on government account; that is, no free coinage.
3. Limited legal-tender power.
4. Protection against excessive quantity by direct redemption on presentation in proper amounts, which also maintains its face value.

As a matter of course, countries have not always had clear conceptions regarding this kind of money, so that the principles just enumerated have come forth only by a process of evolution out of experience. For example, in the United States the first rule was not observed until 1853; not until it was discovered that the same causes which led to the disappearance of the dollar piece (of 371¼ grains pure silver) soon after 1834 also removed the subsidiary coins (two halves or four quarters, etc., then also containing 371¼ grains pure silver). This was the reason why we were driven to such shifts to use foreign coins for small change. In 1853, our subsidiary coins were reduced to 345.6 grains of pure silver for two halves, four quarters, or ten dimes. This reduction in weight by about 6 per cent kept the bullion value of the token coins below that of both the gold and silver dollars, and they circulated freely. They were worth more as small change than as bullion.

As regards the second law it is evident that if coins are issued at a value above the cost of the bullion in them, the issuer gains this profit, or seigniorage. Hence the coinage should not be allowed to a private person but should be restricted to the state, to which the profits should accrue. This is all the more necessary if the duty is laid upon the state to redeem the coins upon demand.

The reason for the third law is obvious. The standard coins being ordinarily issued only in multiples of a unit, there must frequently be fractional sums represented in a debt; and the same considerations which demand that the kind of money to satisfy the major part of the debt shall be clearly defined in law, also require that some method of legally satisfying the fractional portions should be indicated. Consequently, the token coins are made legal tender for this purpose. On the other hand, a payment of a debt in large amounts of over-valued coins, these being of small denomination and hence heavy and cumbrous in large sums, would be a serious inconvenience. If, therefore, the legal-tender quality conferred on token coins were unlimited, the power might be abused by a captious debtor, who might insist on making some large payments in these coins for the purpose of annoying the creditor. Minor and subsidiary coins have usually been made a legal tender, therefore, only to limited amounts.

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[1] From *Report of the Monetary Commission of the Indianapolis Convention* (1898), pp. 113–16.

A person obliged to make remittances abroad might have been paid here in over-valued token coins, which, not being worth in foreign countries more than the bullion they contained, would be short payment and could not be used abroad. Unless he could exchange token coins for full-valued standard coins which would be equally good abroad as well as at home, he would find business decidedly venturesome. Consequently the necessity for the fourth law becomes at once apparent. Indeed, redemption is a fundamental necessity for a system of token coins. Inasmuch as no government can ever foretell the amount which the community will absorb, it must be ready to freely provide token coins in exchange for standard coins whenever needed; and to prevent an excess from clogging the tills of merchants it must be equally ready to pay out standard coins in exchange for token coins whenever the latter are sent in to the Treasury. Thus free exchange of token coins for gold and of gold for token coins, is the only proper method by which an excess in quantity is automatically prevented. If wanted, they are obtainable; if redundant, they are inevitably withdrawn. Without a method of redemption direct or indirect, token or debased coins would certainly go to a discount if issued to excess, because, not being received equally with standard coins, a discrimination against them would manifest itself. Not having in themselves a value equal to their face value, they must borrow the deficiency only from the process by which they can be exchanged at par with full-valued coins. By the act of 1879 subsidiary coins may be exchanged for lawful money in sums of twenty dollars and multiples thereof.

In addition to the removal of excessive issues from the circulation, redemption of token coins performs an important function in the distribution and redistribution of such coins as are needed. Without redemption, nickels, for example, would accumulate in large amounts on the hands of the street car companies; for it would be inconvenient or impossible for these companies to find those who might want small change, and it would be difficult for them to get rid of large accumulations at full value. But the system of redemption offers the means whereby those who have too much can dispose of their surplus, and those who have not enough can get more. The Treasury thus acts as a distributor of the supply of token coins.

Lastly, the community will need only a limited amount of token coins for small change. What this sum will be can be determined only by experience. No one can foretell how many dimes or quarters will be needed in the daily transactions in which money is necessarily used. There must, therefore, be freedom in issuing all that is wanted. Safety is to be found in a prompt redemption of those which the public do not need. In small denominations a very large number of pieces may be required, but the total value may be inconsiderable; for larger denominations of no greater number of pieces the total sum may be quite important. The inconvenience of not having money for large and small change is so great that if the government did not provide it in a form that will circulate (as before 1853 and again in July, 1862) some substitutes are necessarily provided by merchants. The demand for token coins is therefore, up to a certain limit, strong and steady, and if the issues are within this limit there will be no net redemption. The coins presented by one individual or class will be withdrawn by others for use in the channels where they are wanted.

133. PRODUCTION OF GOLD AND SILVER IN THE WORLD SINCE 1492[1]

[From 1493 to 1885 is from a table of averages for certain periods compiled by Dr. Adolph Soetbeer; for the years 1886 to 1910 the production is the annual estimate of the Bureau of the Mint.]

Period	Fine Ounces of Gold 000 Omitted		Fine Ounces of Silver 000 Omitted		Percentage of Production			
	Annual Average for Period	Total for Period	Annual Average for Period	Total for Period	By Weight		By Value	
					Gold	Silver	Gold	Silver
1493–1520...	186	5,221	1,511	42,309	11	89	66.4	33.6
1521–1544...	230	5,524	2,899	69,598	7.4	92.6	55.9	44.1
1545–1560...	273	4,377	10,017	160,287	2.7	97.3	30.4	69.6
1561–1580...	219	4,398	9,628	192,578	2.2	97.8	26.7	73.3
1581–1600...	237	4,745	13,467	269,352	1.7	98.3	22	78
1601–1620...	273	5,478	13,596	271,924	2	98	24.4	75.6
1621–1640...	266	5,336	12,654	253,084	2.1	97.9	25.2	74.8
1641–1660...	281	5,639	11,776	235,530	2.3	97.7	27.7	72.3
1661–1680...	297	5,954	10,834	216,691	2.7	97.3	30.5	69.5
1681–1700...	346	6,921	10,992	219,841	3.1	96.9	33.5	66.5
1701–1720...	412	8,243	11,432	228,650	3.5	96.5	36.6	73.4
1721–1740...	613	12,268	13,863	277,261	4.2	95.8	41.4	58.6
1741–1760...	791	15,824	17,140	342,812	4.4	95.6	42.5	57.5
1761–1780...	665	13,313	20,985	419,711	3.1	96.9	33.7	66.3
1781–1800...	571	11,438	28,261	565,235	2	98	24.4	75.6
1801–1810...	571	5,715	28,746	287,469	1.9	98.1	24.1	75.9
1811–1820...	367	3,679	17,385	173,857	2.1	97.9	25.3	74.7
1821–1830...	457	4,570	14,807	148,070	3	97	33	67
1831–1840...	652	6,522	19,175	191,758	3.3	96.7	35.2	64.8
1841–1850...	1,760	17,605	25,090	250,903	6.6	93.4	52.9	47.1
1851–1855...	6,410	32,051	28,488	142,442	18.4	81.6	78.3	21.7
1856–1860...	6,486	32,431	29,095	145,477	18.2	81.8	78.1	21.9
1861–1865...	5,949	29,747	35,401	177,009	14.4	85.6	72.9	27.1
1866–1870...	6,270	31,350	43,051	215,257	12.7	87.3	70	30
1871–1875...	5,591	27,955	63,317	316,585	8.1	91.9	58.5	41.5
1876–1880...	5,543	27,715	78,775	393,878	6.6	93.4	53	47
1881–1885...	4,794	23,973	92,003	460,019	5	95	45.5	54.5
1886–1890...	5,461	27,306	108,911	544,577	4.8	95.2	44.5	55.5
1891–1895...	7,882	39,412	157,581	787,906	4.8	95.2	44.4	55.6
1896–1900...	12,446	62,234	165,693	828,466	7	93	54.6	45.4
1901........	12,625	12,625	173,011	173,011	6.8	93.2	53.8	46.2
1902........	14,354	14,354	162,763	162,763	8.1	91.9	58.5	41.5
1903........	15,852	15,852	167,689	167,689	8.6	91.4	60.2	39.8
1904........	16,804	16,804	164,195	164,195	9.3	90.7	62.1	37.9
1905........	18,396	18,396	172,317	172,317	9.6	90.4	63.1	36.9
1906........	......	19,471	......	165,054	10.5	89.5	65.3	34.7
1907........	......	19,977	......	184,206	9.8	90.2	63.4	36.6
1908........	......	21,422	......	203,131	9.5	90.5	62.8	37.2
1909........	......	21,696	......	210,453	9.4	90.6	62.5	37.5
1910........	......	21,996	......	222,879	9.0	91.0	61.2	38.8
Total...	......	669,828	......	10,654,233	5.9	94.1	50.1	49.9

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[1] Adapted from *Circular No. 52*, United States Treasury Department (1912), pp. 64-65.

134. COMMERCIAL RATIO OF SILVER TO GOLD ANNUALLY SINCE 1687[1]

Note.—From 1687 to 1832 the ratios are taken from Dr. A. Soetbeer; from 1833 to 1878 from Pixley and Abell's tables, from 1879 to 1894 from daily cablegrams from London to the Bureau of the Mint; and since that time from daily quotations in the public press.

Year	Ratio	Year	Ratio	Year	Ratio	Year	Ratio	Year	Ratio
1687	14.94	1732	15.09	1777	14.54	1822	15.80	1867	15.57
1688	14.94	1733	15.18	1778	14.68	1823	15.84	1868	15.59
1689	15.02	1734	15.39	1779	14.80	1824	15.82	1869	15.60
1690	15.02	1735	15.41	1780	14.72	1825	15.70	1870	15.57
1691	14.98	1736	15.18	1781	14.78	1826	15.76	1871	15.57
1692	14.92	1737	15.02	1782	14.42	1827	15.74	1872	15.63
1693	14.83	1738	14.91	1783	14.48	1828	15.78	1873	15.92
1694	14.87	1739	14.91	1784	14.70	1829	15.78	1874	16.17
1695	15.02	1740	14.94	1785	14.92	1830	15.82	1875	16.59
1696	15.00	1741	14.92	1786	14.96	1831	15.72	1876	17.88
1697	15.20	1742	14.85	1787	14.92	1832	15.73	1877	17.22
1698	15.07	1743	14.85	1788	14.65	1833	15.93	1878	17.94
1699	14.94	1744	14.87	1789	14.75	1834	15.73	1879	18.40
1700	14.81	1745	14.98	1790	15.04	1835	15.80	1880	18.05
1701	15.07	1746	15.13	1791	15.05	1836	15.72	1881	18.16
1702	15.52	1747	15.26	1792	15.17	1837	15.83	1882	18.19
1703	15.17	1748	15.11	1793	15.00	1838	15.85	1883	18.64
1704	15.22	1749	14.80	1794	15.37	1839	15.62	1884	18.57
1705	15.11	1750	14.55	1795	15.55	1840	15.62	1885	19.41
1706	15.27	1751	14.39	1796	15.65	1841	15.70	1886	20.78
1707	15.44	1752	14.54	1797	15.41	1842	15.87	1887	21.13
1708	15.41	1753	14.54	1798	15.59	1843	15.93	1888	21.99
1709	15.31	1754	14.48	1799	15.74	1844	15.85	1889	22.10
1710	15.22	1755	14.68	1800	15.68	1845	15.92	1890	19.76
1711	15.29	1756	14.94	1801	15.46	1846	15.90	1891	20.92
1712	15.31	1757	14.87	1802	15.26	1847	15.80	1892	23.72
1713	15.24	1758	14.85	1803	15.41	1848	15.85	1893	26.49
1714	15.13	1759	14.15	1804	15.41	1849	15.78	1894	32.56
1715	15.11	1760	14.14	1805	15.79	1850	15.70	1895	31.60
1716	15.09	1761	14.54	1806	15.52	1851	15.46	1896	30.66
1717	15.13	1762	15.27	1807	15.43	1852	15.59	1897	34.20
1718	15.11	1763	14.99	1808	16.08	1853	15.33	1898	35.03
1719	15.09	1764	14.70	1809	15.96	1854	15.33	1899	34.36
1720	15.04	1765	14.83	1810	15.77	1855	15.38	1900	33.33
1721	15.05	1766	14.80	1811	15.53	1856	15.38	1901	34.68
1722	15.17	1767	14.85	1812	16.11	1857	15.27	1902	39.15
1723	15.20	1768	14.80	1813	16.25	1858	15.38	1903	38.10
1724	15.11	1769	14.72	1814	15.04	1959	15.19	1904	35.70
1725	15.11	1770	14.62	1815	15.26	1860	15.29	1905	33.87
1726	15.15	1771	14.66	1816	15.28	1861	15.50	1906	30.54
1727	15.24	1772	14.52	1817	15.11	1862	15.35	1907	31.24
1728	15.11	1773	14.62	1818	15.35	1863	15.37	1908	38.64
1729	14.92	1774	14.62	1819	15.33	1864	15.37	1909	39.74
1730	14.81	1775	14.72	1820	15.62	1865	15.44	1910	38.22
1731	14.94	1776	14.55	1821	15.95	1866	15.43	1911	38.33

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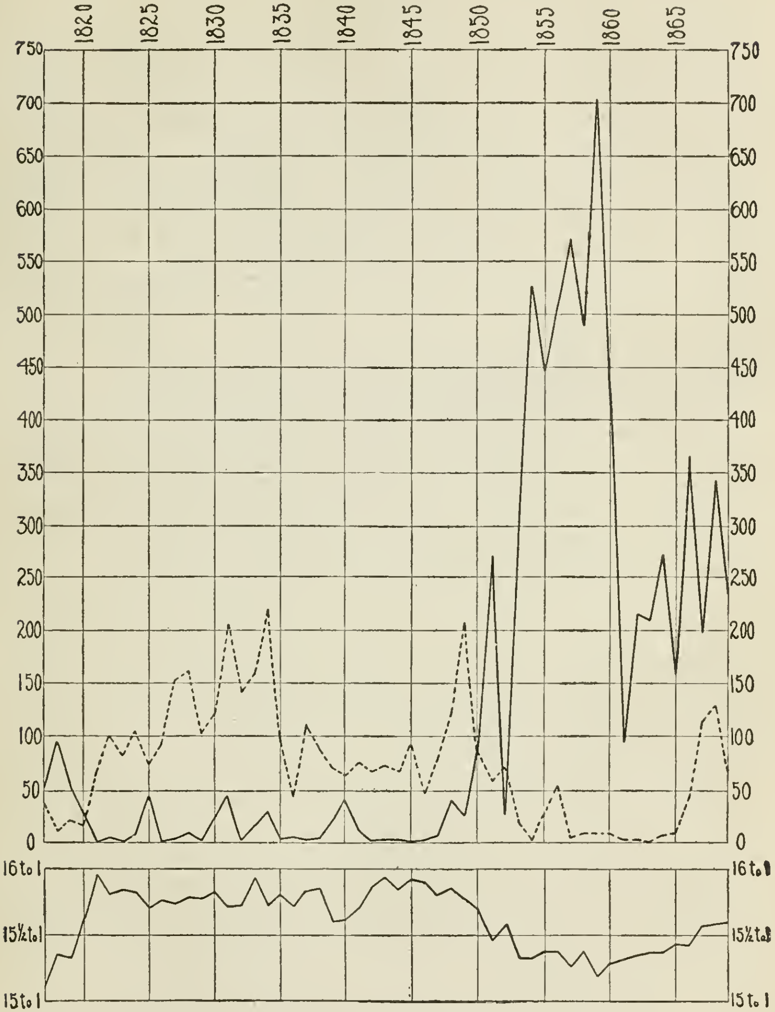
[1] From *Circular No. 52*, United States Treasury Department (1912), p. 75.

135. GRESHAM'S LAW: FRENCH COINAGE, 1817–1869[1]



In the upper diagram the continuous line shows the annual coinage of gold, in millions of francs; the dotted line shows the annual coinage of silver, in millions of francs. The curve in the lower diagram indicates the course of fluctuations in the market ratio of silver to gold. The mint ratio was maintained during the whole period at 15½ to 1.

[1] Diagram plotted from data given by J. Laurence Laughlin, *History of Bimetallism in the United States*, 4th ed., pp. 340–41. D. Appleton & Co., 1900.

136. INCREASE IN THE WORLD'S PRODUCTION OF GOLD, 1800–1906[1]

The rapid increase in the annual production of gold of the world is a feature which has been the subject of much discussion in its relation to the monetary systems and financial affairs generally. The facts are best brought out in the accompanying diagram. California and Australia in the early fifties brought the production rapidly to $180,000,000 from about $10,000,000 in 1830. The output in the earlier part of the century was largely derived from Russia. The gradual decay of placer mining in California and Australia reduced the yield for the world to nearly $100,000,000 about 1886. In the period from 1885 to 1890 numerous discoveries in South Africa, in Western Australia, and in Colorado changed the aspect of the industry.

The cyanide process, which gave better extraction at reduced cost, was introduced about this time. In South Africa especially this process has proved of the utmost importance. A little later discoveries were made in Alaska, Nevada, the Canadian Yukon, Mexico, Rhodesia, and West Africa, notwithstanding the assertion made by many that no further important supplies of gold were likely to be found.

Thus, since 1887 the production of the world has been trending upward, except for the temporary decline due to the Boer War, and in 1907 was about $412,000,000. It will be observed that Africa now (1907) contributes about $151,000,000 or one-third of the world's production, and of the African output about $133,000,000 comes from a small district in the Transvaal.

Barring new and unexpected discoveries it is believed that the world's production will not increase hereafter at the recent rapid rate of advance. It is believed that the maximum production has nearly been reached in the Transvaal, although the present output can be maintained for a long time, probably for more than thirty years. The output of Australia from present indications is more apt to decline than to increase.

As indicated by the diagram, the production of Russia forms a solid and constant substratum on the permanence of which it is fair to rely. A continued increase in the United States is scarcely to be expected, although the recent history of gold mining in Nevada shows what unsuspected riches may lie for decades within easy reach. It is true that there are large unprospected territories in South America which with developing lines of communication may produce much gold, but on the whole the probabilities of the immediate future are rather in favor of maintenance of the present level of output than of a further sensational advance.

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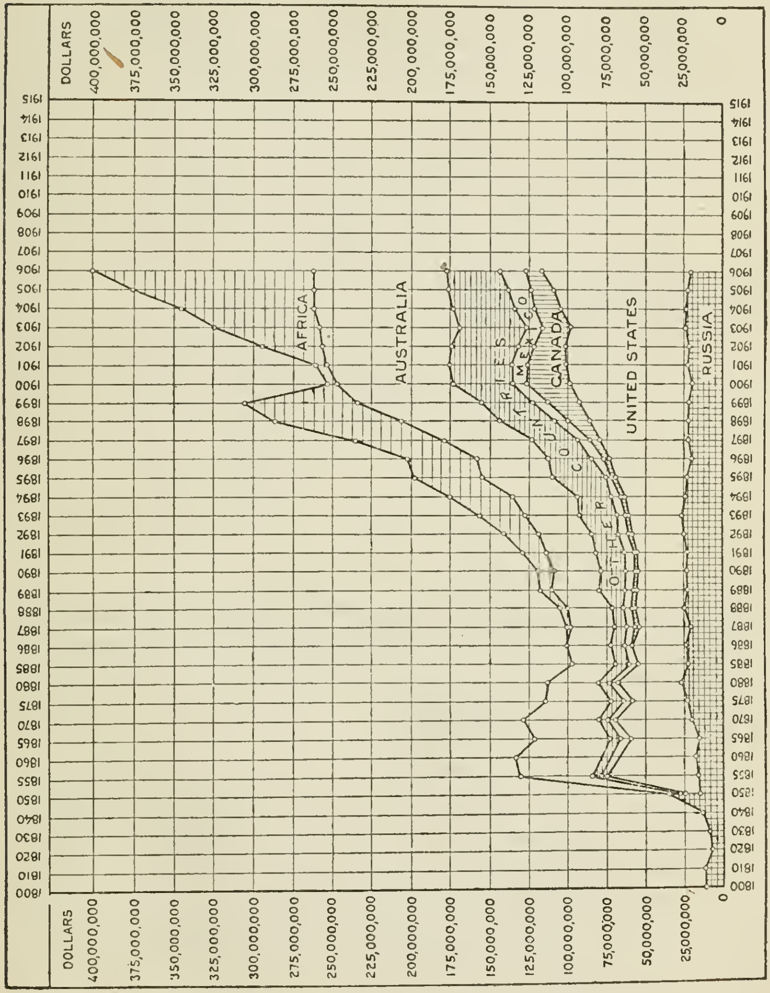
[1] Adapted from the *Report of the National Conservation Commission* (1909), III, 526–27.



The Production of Gold of the World and of the Principal Countries from 1800 to 1906
(After E. Biedermann)

137. THE INCREASED COST OF LIVING[1]

Tabular Outline of Factors That Determine the Cost of Living

I. Cost of living includes:
1. Economic expenditures, or such as contribute to efficiency.
2. Uneconomic expenditures, or such as do not contribute to efficiency.

The chief items of expenditure in the first class are:
- *a.* Rent.
- *b.* Food.
- *c.* Clothing.
- *d.* Fuel and light.
- *e.* Sundries, including outlay for health, recreation, amusement, education, religion, and government

The second class includes:
- *A.* Individual wastage.
  - *a.* Drink.
  - *b.* Luxury.
  - *c.* Amusement.
  - *d.* Domestic waste.
- *B.* Social wastage.
  - *a.* War.
  - *b.* Governmental extravagance.
  - *c.* Crime, pauperism, insanity, accident, disease, unemployment, and the like.

II. The cost of living should be considered not only absolutely, as above, but relatively, as shown by proportion of expenditures to incomes:

a. Wages. *b.* Salaries. *c.* Profits. *d.* Interest.	*e.* Leisure. *f.* Idleness.

III. The prices of commodities and services that constitute the items of expenditure, classified above, are determined by supply, by demand and by value of money.
1. Supply depends on expenses of production.
   - *a.* Natural resources and marginal productivity of land.
   - *b.* Ordinary competitive expenses:
     - (1) Interest on capital.
     - (2) Profits of management.
     - (3) Cost of labor, as determined by wages, hours and efficiency.

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[1] Adapted from the *Report of the* [Massachusetts] *Commission on the Cost of Living* (1910), pp. 193–97, 635–36, 529–31.

- *c.* Effects of legislation:
  - (1) Sanitary laws.
  - (2) Food laws.
  - (3) Labor laws.
  - (4) Tariff laws.
- *d.* Effects of combination:
  - (1) Capital—trusts.
  - (2) Labor—unions.
- *e.* Effects of wastage:
  - (1) Public and private extravagance.
  - (2) Planless and wasteful methods of production and distribution.
- *f.* Effects of improvements and inventions.

2. Demand depends on:
   - *a.* Size and growth of population, as governed by birth rate, death rate, immigration.
   - *b.* Amount of incomes.
   - *c.* Standard of living, as influenced by advance of culture, growth of cities, custom and fashion, habits of spending and saving.
3. Value of money depends on:
   - *a.* Supply of gold.
   - *b.* Currency system.
   - *c.* Use of credit.

CAUSES OF INCREASE OF COST OF LIVING

On the basis of the foregoing analysis of the factors that enter into the determination of the cost of living, we may proceed to classify the causes that have brought about the recent advance of prices. These causes fall into two main groups: First, increase of uneconomic expenditures, through waste, destruction, and general extravagance; second, increase of economic expenditures, brought about by rise of prices.

The chief items in the increase of uneconomic expenditures are enlarged outlay for war and national armaments, higher scale of governmental expenditure in general, and cost of the burden of crime, pauperism, insanity, accident, disease, unemployment, and other forms of social wastage. These are all items of public and social expenditure. Meanwhile, also, individual expenditure of an uneconomic character has increased, including outlay for drink, luxury, amusement, and wasteful or injurious forms of consumption.

The factors that have contributed to bring about an advance of prices, and a consequent expansion of necessary expenditure, fall into three main groups: influences affecting the supply of commodities and services; changes in the demand of consumers; and fall of the value of money. Obviously, there are only three ways in which any particular influence can operate to bring about an advance of prices: it must either affect supply, restricting it or making production more expensive; or it must act upon demand, extending the consumption of goods; or it must alter the money standard in which values are measured and prices are expressed, causing it to depreciate. During the last decade a variety of forces have worked upon prices through these three channels, tending to diminish supply, to increase demand and to reduce the value of money. The resultant of these combined influences is expressed in the higher index numbers of general prices in all countries of the world.

The main influences that have worked to restrict supply are the drain of population from the land, resulting in decreasing the proportion of persons engaged in agricultural production; the exhaustion of natural resources, resulting in increasing expenses of production or diminishing returns to capital and labor; and wasteful methods of production and distribution, especially the latter. Of particular importance in the field of economic waste are needless multiplication of middlemen and of charges in the passage of commodities from the source of supply to the door of the consumer; excessive expenditure for advertising purposes; adulteration and debasement of quality; and distribution of foods in packages, involving in many cases short weight and high cost. The influence of the tariff, that of the trusts, and that of the labor unions must be considered here as possible factors in the advance of prices. Also, the development of legislation for the control of production and distribution, in the shape of sanitary requirements, pure food laws, and labor codes is a factor of considerable importance.

The changes in reference to demand have come about through the growth and concentration of the population in cities, the general advance of the standard of living, bringing larger requirements on the part of the individual consumer, and the national tendency toward extravagant expenditure. The last influence works in two ways to advance prices: it not only increases demand, but it also reduces supply, through the total destruction or partial utilization of goods.

Finally, the fall in the value of money has been brought about by the great increase of the gold supply, the inflation of the currency through the issue of paper money in various forms, and the extension of credit in general. As the supply of money increases, the value of the unit or standard must fall, other things being equal. In other words, the measure of value shrinks as the money commodity becomes more abundant, and the result is expressed in advanced prices. The extension of credit operates to diminish the demand for gold, and in some cases to increase the utility or effectiveness of the money supply, tending thus to reduce its value in two ways. Apart from the general influence of the enlarged supply of money in raising prices, an increase of the gold supply works upon prices in a very direct and potent way. The gold is exchanged for certificates, and the certificates are deposited in banks, becoming reserves. On the basis of these reserves the banks extend their loans, money becomes easy, business is stimulated, and prices are affected immediately and powerfully.

The classification of the causes of the increased cost of living thus presented may be outlined in tabular form as follows:

- I. Increase of uneconomic expenditures:
    - 1. Social wastage.
        - *a.* War and national armaments.
        - *b.* Higher scale of governmental expenditure.
        - *c.* Increasing cost of burden of crime, pauperism, insanity, accident, disease, unemployment and the like.
    - 2. Individual wastage.
        - *a.* Drink.
        - *b.* Luxury.
        - *c.* Amusement.
        - *d.* Domestic waste.
- II. Increase of economic expenditures in consequence of higher prices. The causes of the advance of prices may be classed as:
    - 1. Changes in supply.
        - *a.* Drain of population from the land.
        - *b.* Exhaustion of natural resources.
        - *c.* Wasteful methods of production and distribution.
            - (1) Transportation.
            - (2) Wholesale and retail costs.
            - (3) Advertising.
            - (4) Adulteration.
            - (5) Package foods.
        - *d.* Tariff.
        - *e.* Trusts.
        - *f.* Labor unions.
        - *g.* Legislation.
            - (1) Sanitary laws.
            - (2) Pure food laws.
            - (3) Labor laws.

2. Changes in demand.
    - *a.* Growth and urban concentration of population.
    - *b.* General advance of standard of living.
    - *c.* Extravagance in expenditure.
3. Changes in value of money.
    - *a.* Increase of gold supply.
    - *b.* Inflation of currency.
    - *c.* Extension of credit.

ANALYSIS OF CURRENT EXPLANATIONS OF HIGH PRICES

The causes of the recent advance of prices have been discussed by economists and expert observers in various articles in the magazines and reviews of the last six months. The contributions to this discussion are marked by a wide variety of opinion. There is, however, a striking consensus of opinion regarding one cause of the upward price movement, namely, the increased production of gold. The following table presents an analysis of the causes assigned for the increase of prices by the writers of thirty articles that have appeared in print since January 1, 1910:

Causes	Principal Cause	Contributory Cause
1. Increase of gold supply	17	4
2. Exhaustion of natural resources	4	8
3. Rising standard of living	2	3
4. Withdrawal of population from agriculture, and growth of cities	2	1
5. Trusts and combinations	2	10
6. Tariff	1	7
7. Labor unions	1	3
8. Growth of population, and unscientific methods of farming	1	4
9. Extravagance in expenditure	..	6
10. Waste and fraud in distribution	..	5
11. Uneconomical marketing and housekeeping	..	3
12. Speculation	..	3
13. Immigration	..	2

The figure given in the first column of the table, under the head "Principal Cause," indicates the number of writers who assign the chief importance to the factor in question; that given in the second column, "Contributory Cause," shows the number who regard the influence of the cause enumerated as secondary. It appears that 17 out of the 30 writers attribute the advance of prices mainly to the increase of the gold supply; 4 others regard this cause as of secondary importance. Exhaustion of natural resources, resulting in diminished returns from agriculture, increased expenses of production and pressure of population on the land, is given the first place by 4 writers; 8 others ascribe secondary importance to this factor. A rising standard of living is believed to be the primary cause of higher prices by 2 of the contributors to the recent discussion; 3 others assign some weight to this influence. Withdrawal of population from agriculture, and growth of the cities, which are both consequences of the concentration of population, are regarded as the main factor by only 2 writers, and as a secondary cause by 1. The growth of population in general, combined with unscientific methods of agriculture, resulting in disproportion between the population and the food supply, is selected as the first cause by 1 observer; this cause is given secondary importance by 4 others. Two writers place the responsibility chiefly upon trusts and combinations, and 10 others assign more or less importance to this cause. The tariff is assigned as the primary cause by only 1 writer, but is held to be a contributory influence by 7 others. Similarly, the influence of labor unions is declared to be the chief cause by 1 person, and is mentioned also by 3 others. The foregoing are the only influences that are regarded as chief factors in the advance of prices; the others are regarded by all the writers as of secondary importance, in varying degrees.

FINDINGS OF THE COMMISSION

The findings of the commission with regard to the causes of the recent advance of prices are as follows:

1. The primary cause of the world-wide advance of prices since 1897 is the increase of the gold supply, which has reduced the purchasing power of money and brought about a corresponding increase of values measured in money in all the leading commercial states, and at least in the United States has served as the basis for a vast extension of credit.

2. The advance of prices in the United States has been accelerated greatly by the enormous waste of income, through uneconomic expenditure for war and national armament and through multiple forms of extravagance, both public and private, and of wastage, both individual and social. The increasing burden of disease, accident, crime, and pauperism imposed upon society, and the loss through expenditure on a rising scale for luxuries and through wasteful methods of management in the household, have been potent contributing factors to the advance of the cost of living.

3. The advance of prices has been further promoted by a complexity of causes, operating on the side of supply to reduce the volume and increase the expenses of production, and on the side of demand to extend and diversify the consumption of commodities. The main factors in restricting supply and enhancing the cost of commodities are the drain of population from the land, which has decreased the proportion of persons engaged in producing the food supply; the exhaustion of natural resources, which has resulted in increased expenses of production or diminished returns from the soil; and uneconomic methods of production and distribution, especially the latter. The chief influences on the side of demand which have worked parallel to the forces affecting supply are the growing concentration of population in great cities, which has increased the proportion of nonproducing food consumers; the general advance of the standard of living, which has enlarged the requirements on the part of individual consumers of all classes; and the national habit of extravagance, which has further extended and diversified the demand for comforts and luxuries created by the advance of the standard of living.

4. With regard to the tariff, the trusts and the unions, which have been declared to be either primary or contributory causes of the high cost of living, the commission finds that none of these factors can be regarded as a direct and active cause of the recent increase of prices.

With regard to the tariff, the facts that prices have fallen and risen during long periods without relation to changes in duties; that prices have been rising in Great Britain, under free trade; and that large increases have taken place in the prices of commodities not appreciably affected by the tariff, show conclusively that the tariff is not a factor in the recent upward movement of prices in this country. On the other hand, however, it is clear that in a period of rising prices like the present the tariff cuts off possible relief to consumers by closing access to the cheapest sources of supply in the world's markets. In the past the duties on the necessities of common consumption, food stuffs, have been largely inoperative, because the country produced not only its own food supply, but a large surplus for exportation. The United States appears, however, to be approaching rapidly the turning point, when it will become, instead of a food-exporting, a food-importing country. Under these conditions, as the duties on food stuffs become actually operative, their effect must be to increase the cost of living to wage earners and the expenses of production to manufacturers, thus hampering the development of industry and defeating the very purpose of the protective policy. The commission is therefore of the opinion that when the tariff shall further be revised, the expediency of removing all duties on food products should be considered carefully by the national Congress; and it hopes that the tariff commission will be equipped with such funds and powers as may be necessary for researches adequate as a basis for future changes, to be founded on commercial rather than political considerations.

With reference to the trusts, the facts that the prices of trust-controlled commodities have not risen conspicuously; that prices have advanced in other countries in which trusts have not developed on the American scale; and that the higher prices of food products, including meat, are accounted for by natural causes and are not to be attributed to combination in any considerable degree, indicate that the trusts cannot be held responsible for the late great advance of prices. On the other hand, however, combination undoubtedly enables a group of producers to take advantage of any conditions that may tend to advance prices and to maintain a high price level once established. Under existing conditions, constant vigilance with reference to the action of combinations, especially those dealing with the necessities of life, is doubly incumbent on all officials intrusted with the enforcement of laws against monopoly and combined regulation of prices.

Concerning the labor unions, the facts that less than 10 per cent of the workers of the country are organized; that the workers engaged in the production of the commodities that have risen most notably in price, especially food stuffs, are hardly organized at all; and that wages have risen in less degree and at slower pace than the prices of commodities, the wage advance beginning some time after the price advance, prove that the recent increase of prices cannot be attributed to the influence of trade unions. Concerning the deeper question of the general influence of reduction of hours, increase of wages and trade union policies upon expenses of production, prices and cost of living, the commission expresses no opinion, on account of the impossibility of determining the exact facts required for an impartial answer to this question within the time allowed for its investigation.

138. THE CORRECTION OF PRICE-CHANGES[1]

Historical attempts to correct price changes may be grouped into four classes. First are the well-known instances of efforts of the authorities in almost every country to fix the prices of staple products.

The second method to which resort has been had for preventing the alleged loss from price changes is the attempt to find an ideal or unvarying standard. Accounts of this are to be found in theoretical literature rather than in legislation or social programs.

The third class of proposals includes those which would change the money supply without statistical information indicating the amount of change needed, or the degree of rapidity with which it should proceed. The most important of these proposals is bimetallism.

The fourth method, known as the tabular standard, is that which attempts to determine the change in the average of prices and to pay in money in amounts proportionate to the degree of this change. A variation of this fourth method is proposed by Professor Irving Fisher. He would regulate the price average by controlling the money supply through a seigniorage charge determined by the tabular standard. This is really an indirect way of applying the tabular standard.

139. A COMPENSATED DOLLAR[2]

The following plan, which may be called "the adjustable seigniorage plan," is an attempt to make the purchasing power of the dollar constant. We have at present a gold dollar of constant weight, but of varying purchasing power. We need a dollar of constant purchasing power and varying weight.

The present proposal is to increase and vary, from time to time, the weight of the *bullion* dollar,[3] without necessarily disturbing the weight of the coined dollar. Suppose, for instance, that the bullion dollar had been gradually increased since 1896 until today it were 50 per cent heavier, or 38.7 grains, while the coined dollar were still 25.8 grains. This means that the government would redeem on demand each coined gold dollar in 38.7 grains of gold bullion. Gold dollars would then be mere tokens—like brass checks—entitling the holder to gold bullion just as our gold certificates now entitle the holder to so much gold (coin or bullion) in the United States Treasury. As to convertibility in the other direction, the government mint would stand ready to give back a coined gold dollar for each 38.7 grains of bullion plus a slight coinage fee or "brassage" of, say, 1 per cent. This brassage charge would serve, as afterward explained, to prevent loss to the government by speculation. If 1 per cent, it would be 0.387 grains, to be added to the 38.7, making 39.087 grains in all as the bullion required at the mint to secure a "coined dollar."

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[1] Adapted from David Kinley, "Objections to a Monetary Standard Based on Index Numbers," in the *American Economic Review*, III, 2 (March, 1913).

[2] Adapted from various writings of Irving Fisher.

[3] "Bullion dollar" means the weight of bullion which the owner of gold coin can get for it by redemption.

The difference between the bullion required by the mint (39.087 grains) and the *coin* dollar (25.8 grains) is 13.287 grains and would be retained by the government to strengthen its bullion reserve for redeeming gold coin. Of this 13.287 only 0.387 is brassage; the remainder, 12.9 grains, may for distinction of terms be called seigniorage. Thus in weight the bullion dollar is the coin dollar plus seigniorage and the bullion required by the mint is the amount of this bullion dollar plus "brassage."

An obvious proviso in the proposed plan would be that the bullion dollar must never be lighter than the coin dollar. The present indications are that the dollar, in order to maintain the same purchasing power, will need in general to increase; for further depreciation of gold seems probable. If, however, it should ever happen that the proposed bullion dollar should shrink in weight again to 25.8 grains, then the proviso that it should never shrink lower would come into operation. It would then have to remain 25.8 until the weight required for the bullion dollar should again rise above 25.8 grains. So long as it remained 25.8 grains it would cease to be adjustable and to maintain a constant purchasing power. We should, during this period, simply be in the same condition that we are in at present.

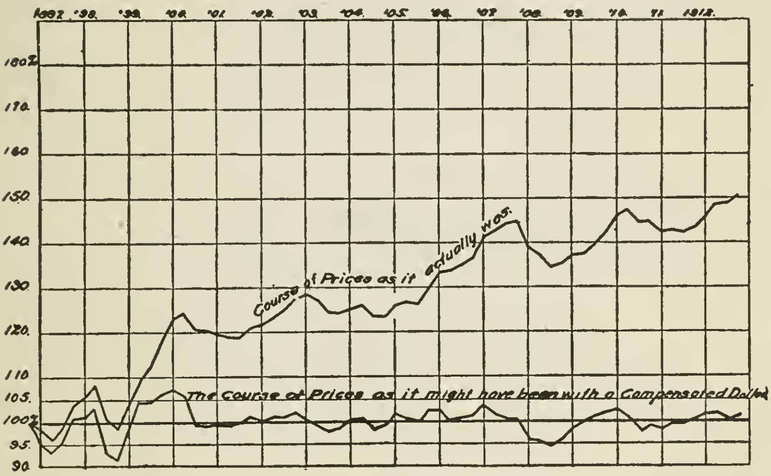
With a coin dollar weighing 25.8 grains and with the bullion dollar never lighter than 25.8 grains, the price of gold bullion can never be higher than $18.60. But this limit or barrier can at any time be made to recede simply by reducing the weight of the *coin* dollar through recoinage. It might even be advisable, in order to secure a wide margin between the coin and the bullion dollar, to begin the new system by recoining at the outset all present gold coin into coins of less weight, the government keeping the difference as a reserve to help create its bullion reserve needed for operating the proposed system. This would, incidentally, have the fiscal advantage of saving the expense of creating such a reserve by taxation or loans.

We come now to another important restriction on changes in the weight of the bullion dollar which should be imposed in order to prevent speculation embarrassing to the government. This restriction is that no single shift in the bullion dollar may exceed the extent of the brassage. That is, if the brassage is 1 per cent, no one shift shall exceed 1 per cent.

If this were not provided but the bullion dollar should at any time be raised more than 1 per cent, if, e.g., the shift was from a bullion dollar of 38.7 grains to 40 grains (and from a quantum of bullion required by the mint of 39.087 grains to 40.40 grains), the government might be embarrassed by speculation. The new pair of figures (40 and 40.40) would both be above the range of the old pair (38.7 and 39.087); that is, the lower (40) of the new pair would be higher than the higher (39.087) of the old pair. When it was known or expected that these changes were to be made on a certain date, speculators would hurry bullion to the mint in advance of that date and for each 39.087 grains receive a coin dollar. With this dollar they could, as soon as the set date arrived, return and demand redemption in 40 grains. Thus they would win over night 40—39.087, or 0.913 grains on each 39.087 grains originally held. Again, if the bullion dollar were changed too much at any time in the opposite direction as, say, from 38.7 grains to 37 grains, owners of gold coin could get it redeemed in bullion at the old rate today and mint this bullion at the new rate tomorrow. Each coin dollar they could redeem today in 38.7 grains of gold bullion and tomorrow under the new arrangement they could get a dollar from the mint for only 37 grains plus 1 per cent brassage, or 37.37 grains, still leaving 38.7—37.37 grains or 0.33 grains of bullion for overnight profit on each original dollar invested in the speculation.

But if the permissible shift in weight of the bullion dollar were not over 1 per cent in either direction, no such profit would be possible. The restriction in the shift to 1 per cent at a time is ample to permit of all the movement ordinarily required, provided the shift is made often enough. It might be monthly, or 12 per cent per annum; it might be bimonthly, or 6 per cent per annum; it might be quarterly, or 4 per cent per annum. Moreover, the margin for each shift might be narrowed or widened by making the brassage three-fourths of 1 per cent or less, or 1½ per cent or more.

One important question remains: How can we know what changes to make from time to time in the weight of the bullion dollar? The answer is: By index numbers of prices, such as those of the United States Bureau of Labor, Bradstreet, Gibson, Sauerbeck, *The Economist*, or the British Board of Trade. Any of these would afford a good guide and they all agree fairly well.



When once a system of index numbers is fixed upon, their numerical calculation becomes a mere matter of clerical arithmetic. If the official index number should show the price level to be, say, one-half of 1 per cent above the base level from which the system started, it would become mandatory to increase the gold bullion dollar by one-half of 1 per cent (i. e., to decrease the bullion prices by one-half of 1 per cent), and so on for any increase or decrease—subject, of course, to the restrictions above imposed. Thus if the price level were 1 per cent below normal, the bullion dollar could be reduced by only 1 per cent in any one quarter of the year; but the full correction could be reached in three quarters unless the deviation were aggravated in the meantime; and in that case the correction would follow steadily on the heels of the deviation. Except in paper money times there never was, I think, a historical case of a persistent rise of prices over any large part of the world as great as 1 per cent a quarter or 4 per cent a year for more than two or three years, while the falls of prices have been still less violent, excepting after crises. Under the system here proposed there would be little opportunity for crises to incubate.

The plan then in brief is:

1. To institute an official index number of prices, selecting some initial year as the base of reference, the price level for that year being called 100 per cent.
2. The government or governments thereafter to readjust the official weight of the "bullion dollar" (the quantum of bullion in which it will redeem the gold dollar) at regular intervals, say monthly, according to the findings of the index number. If in any month the index number deviates from par, the bullion dollar is to be corrected in proportion to the deviation, provided, however,
    - *a*) that no one shift in the weight of the bullion dollar shall exceed the brassage (say 1 per cent) nor such stated limits as will safeguard the government from injurious speculations and
    - *b*) that the bullion dollar shall in no case be of less weight than the coin dollar.
3. The government to be responsible at all times for redeeming on demand gold coins (or certificates) in bullion dollars and for minting bullion at the same rate (except for the brassage of, say, 1 per cent); in other words, the government to be always ready to sell gold bullion at the redemption price and to buy it at the mint-price (the redemption-price less the brassage).

In summary it may be said that the plan may be called:

With respect to its purpose:
  A plan to assimilate the gold standard to the multiple standard;
    i.e., to convert the *gold* standard into a true gold *standard*.
    i.e., to make a stable dollar.
    i.e., to standardize the dollar as a unit of purchasing power.
    i.e., to change from a gold dollar of constant weight and varying purchasing power to a gold dollar of constant purchasing power and varying weight.
With respect to the method:
  A plan to make a compensated dollar;
    i.e., to (virtually) increase the weight of the gold dollar to compensate for the depreciation of gold.
    i.e., to change the status of gold coins to that of silver coins—tokens, or mere "brass checks," so to speak, entitling the holder to a varying quantity of gold bullion which would be the virtual dollar.
    i.e., to restore the ancient custom of seigniorage, but adjusted according to index numbers.
    i.e., to lower the mint-price of gold to keep pace with its actual depreciation.

140. THE COMPENSATED DOLLAR: A CRITICISM[1]

I

It must be admitted at the outset that the plan, if carried out with iron consistency for a considerable stretch of time, would achieve the result mainly had in view—the prevention of a long-continued and considerable rise in prices. No one who holds to the doctrine that the general range of prices is determined by the relation between the quantity of commodities and the volume of the circulating medium, and that the volume of the circulating medium in the end depends, *ceteris paribus*, on the amount of coined money, can do otherwise than admit the logical soundness of the scheme.

More stress should be laid, however, than Professor Fisher does, on the fact that the plan can work out its results only through its effects on the *quantity* of coined gold. The connection between the quantity of coined money and general prices is by no means a close one. It is not only loose and uncertain, but we are much in the dark concerning the degree of looseness and uncertainty. Economists should be very chary of prediction in such matters, and Professor Fisher makes predictions which the event might greatly falsify. It seems to me highly improbable that fluctuations in prices would cease, or that such a smooth course would be followed as is indicated on Professor Fisher's chart. So long as the modern mechanism of credit continues to be used, fluctuations in prices seem to me inevitable. A long-continued considerable advance would alone be prevented. Commercial crises would not be prevented, nor, in my judgment, appreciably abated. Professor Fisher's predictions on this subject rest upon the particular theory of commercial crises which he has developed elsewhere. That theory does not seem to me established, and I have little faith in predictions that are based upon it. Nor do I believe that labor discontent is as closely connected with changes in general prices as Professor Fisher intimates.

II

What is to be said now of the poissbility of securing the adoption of such a plan?

An international agreement for its adoption seems to me in the highest degree unlikely. Let it be recalled how repeated were the endeavors, under stress greater than that felt in recent years, to bring about an agreement for international bimetallism. A fall in general prices and in money incomes is a phenomenon much more unwelcome than a rise. The earlier fall in prices, moreover, was bitterly felt not only by the debtor classes, but by all the protectionists. The movement for international bimetallism had powerful support in political circles as well as among the economists. Yet it never had a ghost of a chance. So great is the rivalry between nations, so intent is each upon its own advantage, so jealous are they of each other, so strong above all is the spirit of selfishness and mercantilism in their economic policies, that it seems to me hopeless to expect them to come to an understanding on a matter of this sort.

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[1] Adapted from F. W. Taussig, "The Plan for a Compensated Dollar," in *The Quarterly Journal of Economics*, XXVII, 402–16 (May, 1913).

Even if, by some unexpected stroke, an international agreement were to be secured, it would rest upon the frailest basis. Any war would put an end to it. Any stage of depression in an important country would render it in the highest degree irksome, would lead to its revocation by some one country, and then would cause the whole structure to topple over. Not least, there would be differences concerning the index number of prices to be used in fixing the seigniorage. Prices do not move parallel in different countries. It is inevitable that they should sometimes rise in one country, while falling in another; or rise in one more than in another, or fall more. Which country's index number should govern? If indeed all countries were convinced that a disastrous depreciation of money were impending, and if they were resolutely determined to sink all differences and all selfish interests in order to prevent it, they might act on the basis of a compromise index number settled by an international commission. But the mere mention of these conditions precedent suffices to show how far they are from being present.

The question arises whether it would be feasible for one country alone to adopt the plan.[1] It would be feasible, in the same sense that it would be feasible for all countries together to adopt it. One country alone, carrying it out with unflinching consistency, might secure the desired result, subject to the qualifications which have already been indicated. But that any one country would in fact adopt it alone seems to me in the highest degree improbable.

Consider for a moment the mode in which the scheme would work in detail if adopted by a single country. The immediate effect of a

[1] Professor Fisher intimated in some of his earlier writings on the subject that a single country might adopt the plan. In later papers, however, he has advocated it for international adoption only.

seigniorage would be, as Professor Fisher points out, a readjustment of the par of foreign exchange. The exporter would find the par of exchange lessened, and in terms of domestic money (compensated dollars) he would receive less than he got before. All commodities of export would fall in price at once, or fail to rise, to the extent of the seigniorage. The exporters would be as hotly indignant with the plan as if an excise tax had been imposed on their commodities without any possibility of their raising the price of their products. Consider for a moment what would be the state of mind in our cotton-exporting South. Is it to be supposed that any set of legislators could resist the political pressure from the various exporting sections, and carry out the scheme unflinchingly? Can we imagine a Congressman telling his constituents that they need only wait a while, until all money incomes and all prices had adjusted themselves to the new conditions? that *then* nobody would be worse off or better off than before? To ask this sort of question is to answer it.

III

In view of all these complications, uncertainties, and political and sectional obstacles, the question presents itself whether the emergency is so serious, the evil so great, the gain to be secured so unmistakable, that it is worth while to press so far-reaching a change.

Professor Fisher has predicted that prices will rise further. He is disposed to believe that there will be not only a rise, but that there will be a considerable rise. I hesitate very greatly to enter the domain of prediction. I am inclined to believe that the rise in prices will not cease for the next decade; but whether it will be considerable or moderate or negligible in extent, I should not venture to say. Predictions concerning the output from the mines are to be taken with the greatest caution. We all recall the predictions which Suess made in 1892.[1] The distinguished geologist believed that the prospects of an increased production of gold were of the slightest, and that the world must fall back on the use of both metals. How different the course of events has been from that which he predicted! There are those who believe that the output of gold, so far from continuing to increase, has reached, or is approaching, its maximum.[2] For myself, I should not be surprised if there were a cessation in growth, and should certainly be surprised if there were not a relaxation in the rate of growth.

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[1] E. Suess, *Die Zukunft des Silbers* (1892).

[2] See, for example, R. A. Lehfeldt, in the *Economic Journal*, XXII, 487 (September, 1912).

Further: it deserves to be borne in mind that the total supply of the precious metals is now so much greater than it was twenty years ago that the same annual increment will have much less effect on prices. This is the familiar consequence of the durability of the precious metals.

Finally, a circumstance should be borne in mind which bears not only upon the intrinsic desirability of a regulative plan, but also upon the attitude of the general public and the consequent political and industrial possibilities. The economist is thinking and reasoning about the change which has been of special interest for him—the general rise in prices. The man on the street is thinking about the exceptional rise in the prices of one important set of commodities. Anyone who will examine with care the index numbers of our Bureau of Labor will see what a marked rise, much beyond that of the general index number, has appeared in the prices of farm products, and especially in the prices of meat. That special advance has taken place within the last three or four years. It is precisely within this period that general attention has been turned to rising prices. What the public has had chiefly in mind has been not the general change, but the particular change in the commodities of wide consumption. This, I believe, is the main cause of labor unrest.

Whatever be the particular causes that have led to the high prices of food, economists agree that these causes will operate irrespective of any compensated dollar plan. This would simply serve, at its best, to keep general prices where they are, leaving each particular group of commodities subject to its own particular set of causes. If the compensated dollar plan were to be adopted, and if the prices of food should continue to mount, there would be disappointment for the general public, but nothing to surprise the economist. And conversely, it is entirely possible that the rise in the cost of living, that is, the special rise in the prices of food-stuffs, will reach its end irrespective of any monetary change whatever. The general rise in prices and money incomes, to repeat what has already been said, is not unwelcome to the great majority of people. Its incidental consequences are perceived and debated chiefly by the economists; such as the effects on the creditor class and the slowness of so-called fixed incomes to rise correspondingly. The general public is concerned chiefly with the conspicuous rise in the prices of food-stuffs, which is ascribable to causes very different from those that bring the general rise, and can be reached only by remedies very different.

In sum, I am not convinced that the evils of the present system are so great as to call for the extraordinary remedy proposed. If, indeed, consequences of the most serious sort were imminent from an overwhelming increase in the gold supply, we might feel disposed to move heaven and earth to prevent them. Obstacles from international jealousy, or from wide-spread misconceptions and fallacies, could then only spur us to greater exertions. But if the evils are as yet not unbearable; if those against which the public most rebels are due chiefly to other causes than the mere increase in gold supply; if the remedy proposed is one whose operation is far from certain, likely to lead to complications of its own, and in danger of being discarded on its first failure to work a cure—let us bear the ills we have.

141. METHODS OF REGULATING A PAPER CURRENCY[1]

The state may either take the issue of representative money into its own hands, as it takes the coining of money, or it may allow private individuals, or semi-public companies and corporations, to undertake the work under more or less strict legislative control. In either case we may lay down the following series of methods according to which the amount of issue may be regulated, and the performance of the promises guaranteed.

1. *The simple deposit method.*—The issuer of promissory notes may be obliged to keep a stock of coin and bullion constantly on hand, equal in amount to the aggregate of the uncanceled notes, each of which, being instantly paid on presentation, will produce a corresponding decrease of the reserve.

2. *The partial deposit method.*—Instead of being obliged to keep the whole of the precious metals deposited in his vaults, the issuer may be allowed to invest a fixed amount in government funds, or other safe profitable securities.

3. *The minimum reserve method.*—The issuer may be bound to have on hand under all circumstances a fixed minimum amount of coin and bullion.

4. *The proportional reserve method.*—The reserve may be made to vary with the amount of outstanding notes, being, say, at least one-third or one-fourth of the total.

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[1] From W. S. Jevons, *Money and the Mechanism of Exchange*, chap. xviii.

5. *The maximum issue method.*—Permission may be given to issue notes not exceeding in the aggregate a fixed amount, prohibitory penalties being imposed upon any breach of this restriction.

6. *The elastic limit method.*—A limit may be assigned to the aggregate amount of notes, as in the last method, but the penalties on the excessive issue may be intentionally made so light, that the issuer will under some circumstances prefer to pay the penalty rather than restrict his issues.

7. *The documentary reserve method.*—The reserve of property which the issuer is required to keep may consist not of gold or silver coin or bullion, but of government funds, bonds, shares, or other documentary securities.

8. *The real property reserve method.*—Instead of merely documentary property, the issuer may be allowed to treat various property, such as land, houses, ships, railway shares, etc., as his reserve of wealth to meet engagements.

9. *The foreign exchanges method.*—Some important bank may be allowed to issue convertible notes on the understanding that it will not increase the amount in circulation so long as the foreign exchanges are against the country, and render the export of specie profitable.

10. *The free issue method.*—The business of issuing promissory notes may be left open to the free competition of all individuals, free from any restrictions or conditions, except such laws as apply to all commercial contracts and promises.

11. *The gold par method.*—Paper money may be issued, bearing the appearance of promissory notes, but inconvertible into coin. The issue being restricted as long as any premium on gold is apparent, the paper money may be thus maintained equal in value to the coin which it nominally represents.

12. *The revenue payments method.*—Inconvertible paper money may be freely issued, but an attempt may be made to keep up its value by receiving it in place of coin in the payment of taxes.

13. *The deferred convertibility method.*—Notes may be issued promising to pay metallic money at some future day, either definitely fixed or dependent upon political or other contingent events.

14. *The paper money method.*—Lastly, those who coin apparent promissory notes may be entirely absolved from the performance of their promises, so that the notes circulate by force of habit, by the command of the sovereign, or in consequence of the absence of any other medium of exchange.

Although I have, in the above statement, enumerated no less than fourteen distinct methods of managing the issue of paper currency, it is by no means certain that other methods have not been employed from time to time. There may be, in fact, an almost unlimited number of devices for securing the performance of promises, or for rendering the performance unnecessary. Moreover, these methods may be combined together in almost unlimited variety. The reserve may be required to be partially in the form of specie, and partially in documentary securities, or real property. A banker may be allowed to issue a certain fixed amount of notes without any condition as to reserves, and to issue further notes on the deposit method.

142. PAPER MONEY: THE CONTINENTAL CURRENCY[1]

The depreciation began at different periods in different states; but in general about the middle of the year 1777, and progressively increased for three or four years. Toward the last of 1777, the depreciation was about two or three for one; in 1778 it advanced from two or three for one to five or six for one; in 1779, from five or six for one to 27 or 28 for one; in 1780 from 27 or 28 for one to 50 or 60 for one, in the first four or five months. Its circulation was afterward partial, but where it passed it soon depreciated to 150 for one. In some few parts it continued in circulation for the first four or five months of 1781, but in this latter period many would not take it at any rate, and they who did, received it at a depreciation of several hundreds for one.

As there was a general clamor on account of the floods of money, which at successive periods had deluged the states, it was resolved in October, 1779, that no further sum should be issued on any account whatever than what, when added to the present sum in circulation, would in the whole be equal to 200 millions of dollars. It was at the same time resolved, that Congress should emit only such a part of the sum wanting to make up 200 millions, as should be absolutely necessary for the public exigencies, before adequate supplies could be otherwise obtained, relying for such supplies on the exertions of the several states. This was forcibly represented in a circular letter from Congress to their constituents, and the states were earnestly intreated to prevent that deluge of evils which would flow from their neglecting to furnish adequate supplies for the wants of the confederacy. The same circular letter stated the practicability of redeeming all the bills of Congress at par with gold and silver, and rejected with indignation the supposition that the states would ever tarnish their credit by violating public faith. These strong declarations in favor of the paper currency deceived many to repose confidence in it to their ruin. Subsequent events compelled Congress to adopt the very measure in 1780, which in the preceding year they had sincerely reprobated.

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[1] From David Ramsay, *History of the American Revolution* (1789), II, 128–36

From the non-compliance of the states, Congress was obliged in a short time after the date of their circular letter to issue such a further quantity as when added to previous emissions made the sum of 200 millions of dollars. Besides this immense sum, the paper emissions of the different states amounted to many millions; which mixed with the continental money, and added to its depreciation. What was of little value before now became of less. The whole was soon expended, and yet from its increased depreciation the immediate wants of the army were not supplied. The source which for five years had enabled Congress to keep an army in the field being exhausted, General Washington was reduced for some time to the alternative of disbanding his troops, or of supplying them by a military force. He preferred the latter, and the inhabitants of New York and New Jersey, though they felt the injury, saw the necessity, and patiently submitted.

The states were next called upon to furnish in lieu of money determinate quantities of beef, pork, flour, and other articles, for the use of the army. This was called a requisition for specific supplies or a tax in kind, and was found on experiment to be so difficult of execution, so inconvenient, partial, and expensive, that it was speedily abandoned. About this time, Congress resolved upon another expedient. This was to issue a new species of paper money, under the guaranty of the several states. The old money was to be called in by taxes, and as soon as brought in to be burnt, and in lieu thereof, one dollar of the new was to be emitted for every twenty of the old, so that when the whole 200 millions were drawn in and canceled, only ten millions of the new should be issued in their place, four-tenths of which were to be subject to the order of Congress, and the remaining six-tenths to the order of the several states. These new bills were to be redeemable in specie within six years, and to bear an interest at the rate of five per cent to be paid also in specie, at the redemption of the bills, or at the election of the owner annually in bills of exchange on the American commissioners in Europe, at four shillings and six pence for each dollar.

From the execution of these resolutions it was expected, that the old money would be canceled, that the currency would be reduced to a fixed standard, that the states would be supplied with the means of purchasing the specific supplies required of them, and that Congress would be furnished with efficient money, to provide for the exigencies of the war. That these good effects would have followed, even though the resolutions of Congress had been carried into execution, is very questionable, but from the partial compliances of the states the experiment was never fairly made, and the new paper answered very little purpose. It was hoped by varying the ground of credit, that Congress would gain a repetition of the advantages which resulted from their first paper expedient, but these hopes were of short duration. By this time much of the popular enthusiasm had spent itself, and confidence in public engagements was nearly expired. The event proved that credit is of too delicate a nature to be sported with, and can only be maintained by honesty and punctuality. The several expedients proposed by Congress for raising supplies having failed, a crisis followed very interesting to the success of the revolution. The particulars of this shall be related among the public events of the year 1781, in which it took place. Some observations on that primary instrument of American Independence, the old continental bills of credit, shall for the present close this subject.

Paper of no intrinsic value was made to answer all the purposes of gold and silver, and to support the expenses of five campaigns. This was in some degree owing to a previous confidence, which had been begotten by honesty and fidelity, in discharging the engagements of government. From New York to Georgia there never had been, in matters relating to money, an instance of a breach of public faith. In the scarcity of gold and silver, many emergencies had imposed a necessity of emitting bills of credit. These had been uniformly and honestly redeemed. The bills of Congress being thrown into circulation, on this favorable foundation of public confidence, were readily received. The enthusiasm of the people contributed to the same effect. That the endangered liberties of America ought to be defended, and that the credit of their paper was essentially necessary to a proper defense, were opinions engraven on the hearts of a great majority of the citizens. It was therefore a point of honor, and considered as a part of duty, to take the bills freely at their full value.

Private gain was then so little regarded, that the Whig citizens were willing to run all the hazards incidental to bills of credit, rather than injure the cause of their country by undervaluing its money. Everything human has its limits. While the credit of the money was well supported by public confidence and patriotism, its value diminished, from the increase of its quantity. Repeated emissions begat that natural depreciation, which results from an excess of quantity. This was helped on by various causes, which affected the *credit* of the money. The enemy very ingeniously counterfeited their bills and industriously circulated their forgeries through the United States. Congress allowed to their public agents a commission on the amount of their purchases. Instead of exerting themselves to purchase at a low price, they had therefore an interest in giving a high price for every thing. So strong was the force of prejudice, that the British mode of supplying armies by contract, could not for a long time obtain the approbation of Congress. While these causes operated confidence in the public was abating, and at the same time, that fervor of patriotism which disregarded interest was daily declining. To prevent or retard the depreciation of their paper money, Congress attempted to prop its credit by means which wrecked private property, and injured the morals of the people without answering the end proposed. They recommended to the states to pass laws for regulating the prices of labor, manufacture, and all sorts of commodities, and for confiscating and selling the estates of Tories, and for investing the money arising from the sales thereof in loan-office certificates. As many of those who were disaffected to the revolution absolutely refused to take the bills of Congress even in the first stage of the war, when the real and nominal value was the same, with the view of counteracting their machinations, Congress early recommended to the states to pass laws for making the paper money a legal tender, at their nominal value in the discharge of *bona fide* debts, though contracted to be paid in gold and silver. With the same views, they further recommended that laws should be passed by each of the states, ordaining that "whosoever should ask or receive more, in their bills of credit for gold or silver or any species of money whatsoever, than the nominal sum thereof in Spanish dollars, or more in the said bills for any commodities whatsoever, than the same could be purchased from the same person in gold and silver, or offer to sell any commodities for gold and silver, and refuse to sell the same for the said bills, shall be deemed an enemy to the liberties of the United States, and forfeit the property so sold or offered for sale." The laws which were passed by the states, for regulating the prices of labor and commodities, were found on experiment to be visionary and impracticable. They only operated on the patriotic few, who were disposed to sacrifice every thing in the cause of their country, and who implicitly obeyed every mandate of their rulers. Others disregarded them, and either refused to part with their commodities, or demanded and obtained their own prices.

These laws in the first instance made an artificial scarcity, and had they not been repealed would soon have made a real one, for men never exert themselves unless they have the fruit of their exertions secured to them, and at their own disposal.

The confiscation and sale of the property of Tories, for the most part brought very little into the public treasury. The sales were generally made for credit and by the progressive depreciation, what was dear at the time of the purchase, was very cheap at the time of payment. The most extensive mischief resulted, in the progress and toward the close of the war, from the operation of the laws which made the paper bills a tender in the discharge of debts contracted payable in gold or silver. When this measure was first adopted little or no injustice resulted from it, for at that time the paper bills were equal, or nearly equal to gold or silver, of the same nominal sum. In the progress of the war, when depreciation took place, the case was materially altered. Laws which were originally innocent became eventually the occasion of much injustice.

The aged who had retired from the scenes of active business, to enjoy the fruits of their industry, found their substance melting away to a mere pittance, insufficient for their support. The widow who lived comfortably on the bequests of a deceased husband experienced a frustration of all his well-meant tenderness. The laws of the country interposed, and compelled her to receive a shilling, where a pound was her due. The blooming virgin who had grown up with an unquestionable title to a liberal patrimony was legally stripped of everything but her personal charms and virtues. The hapless orphan, instead of receiving from the hands of an executor a competency to set out in business, was obliged to give a final discharge on the payment of 6*d*. in the pound. In many instances, the earnings of a long life of care and diligence were, in the space of a few years, reduced to a trifling sum. A few persons escaped these affecting calamities by secretly transferring their bonds, or by flying from the presence or neighborhood of their debtors. The evils which resulted from the legal tender of these paper bills were foreign from the intentions of Congress, and of the state legislatures. It is but justice to add further that a great proportion of them flowed from ignorance. Till the year 1780, when the bills fell to forty for one, it was designed by most of the rulers of America, and believed by a great majority of the people, that the whole sum in circulation would be appreciated by a reduction of its quantity, so as finally to be equal to gold or silver. In every department of government the Americans erred from ignorance, but in none so much as in that which related to money.

Such were the evils which resulted from paper money. On the other hand, it was the occasion of good to many. It was at all times the poor man's friend. While it was current, all kinds of labor very readily found their reward. In the first years of the war, none were idle from want of employment, and none were employed, without having it in their power to obtain ready payment for their services. To that class of people, whose daily labor was their support, the depreciation was no disadvantage. Expending their money as fast as they received it, they always got its full value. The reverse was the case with the rich, or those who were disposed to hoarding. No agrarian law ever had a more extensive operation than Continental money. That for which the Gracchi lost their lives in Rome, was peaceably effected in the United States by the legal tender of these depreciating bills. The poor became rich, and the rich became poor. Money-lenders, and they whose circumstances enabled them to give credit, were essentially injured. All that the money lost in its value was so much taken from their capital, but the active and industrious indemnified themselves, by conforming the price of their services to the present state of the depreciation. The experience of this time inculcated on youth two salutary lessons, the impolicy of depending on paternal acquisitions, and the necessity of their own exertions. They who were in debt, and possessed property of any kind, could easily make the latter extinguish the former. Everything that was useful when brought to market readily found a purchaser. A hog or two would pay for a slave; a few cattle for a comfortable house; and a good horse for an improved plantation. A small part of the productions of a farm would discharge the long-outstanding accounts due from its owner. The dreams of the golden age were realized to the poor man and the debtor, but unfortunately what these gained was just so much taken from others.

The evils of depreciation did not terminate with the war. They extend to the present hour. That the helpless part of the community were legislatively deprived of their property was among the lesser evils which resulted from the legal tender of the depreciated bills of credit. The iniquity of the laws estranged the minds of many of the citizens from the habits and love of justice.

The nature of obligations was so far changed that he was reckoned the honest man who from principle delayed to pay his debts. The mounds which government had erected, to secure the observance of honesty in the commercial intercourse of man with man, were broken down. Truth, honor, and justice were swept away by the overflowing deluge of legal iniquity, nor have they yet assumed their ancient and accustomed seats. Time and industry have already, in a great degree, repaired the losses of property, which the citizens sustained during the war, but both have hitherto failed in effacing the taint which was then communicated to their principles, nor can its total ablution be expected till a new generation arises, unpracticed in the iniquities of their fathers.

143. DEPRECIATION OF THE CONTINENTAL CURRENCY[1]

JEFFERSON'S TABLE OF EMISSIONS

Emissions	Sum Emitted	Depreciation	Worth of the Sum Emitted in Silver Dollars
1775, June 23	$2,000,000	....	$2,000,000
Nov. 29	3,000,000	....	3,000,000
1776, Feb. 17	4,000,000	....	4,000,000
Aug. 13	5,000,000	....	5,000,000
1777, May 20	5,000,000	2, 2, 3	1,877,273
Aug. 15	1,000,000	3	333,333⅓
Nov. 7	1,000,000	4	250,000
Dec. 3	1,000,000	4	250,000
1778, Jan. 8	1,000,000	4	250,000
Jan. 22	2,000,000	4	500,000
Feb. 16	2,000,000	5	400,000
Mar. 5	2,000,000	5	400,000
April 4	1,000,000	6	166,666⅔
April 11	5,000,000	6	833,333⅓
April 18	500,000	6	88,333⅓
May 22	5,000,000	5	1,000,000
June 20	5,000,000	4	1,250,000
July 30	5,000,000	4½	1,111,111
Sept. 5	5,000,000	5	1,000,000
Sept. 26	10,000,100	5	2,000,020
Nov. 4	10,000,100	6	1,666,683⅓
Dec. 14	10,000,100	6	1,666,683⅓
1779, Jan. 14	24,447,620*	8	3,055,952½
Feb. 3	5,000,160	10	500,016
Feb. 12	5,000,160	10	500,016
April 2	5,000,160	17	294,127
May 5	10,000,100	24	416,670⅚
June 4	10,000,100	20	500,005
June 17	15,000,280	20	750,014
Sept. 17	15,000,260	24	625,010⅚
Oct. 14	5,000,180	30	166,672⅔
Nov. 17	10,050,540	38½	261,053
Nov. 29	10,000,140	38½	259,743
	$200,000,000		$36,367,719⅚

* The sum actually voted was $50,000,400, but part of it was for exchange of old bills, without saying how much. It is presumed that these exchanges absorbed $25,552,780, because $24,447,620 with all the other emissions preceding September 2, 1779, will amount to $159,948,880, the sum which Congress declared to be then in circulation.

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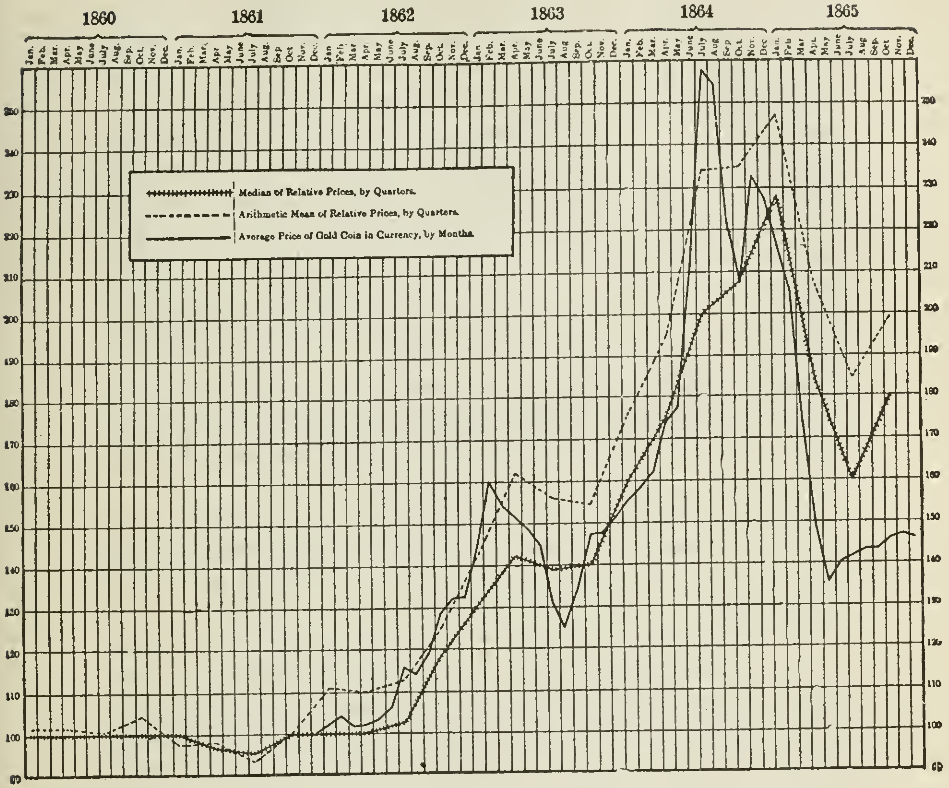
[1] From Henry Phillips, *Historical Sketches of American Paper Currency*, Second Series (1866), p. 199.

144. GREENBACK PRICES DURING THE CIVIL WAR[1]



Relative Prices at Wholesale and the Value of Gold Coin in Currency, 1860–65

145. DEPRECIATED PAPER MONEY IN THE CONFEDERACY[2]

The financial system adopted by the Confederate government was singularly simple and free from technicalities. It consisted chiefly in the issue of treasury notes enough to meet all the expenses of the government, and in the present advanced state of the art of printing there was but one difficulty incident to this process; namely, the impossibility of having the notes signed in the Treasury Department, as fast as they were needed. There happened, however, to be several thousand young ladies in Richmond willing to accept light and remunerative employment at their homes, and as it was really a matter of small moment whose name the notes bore, they were given out in sheets to these young ladies, who signed and returned them for a consideration. I shall not undertake to guess how many Confederate treasury notes were issued. Indeed, I am credibly informed by a gentleman who was high in office in the Treasury Department, that even the secretary himself did not certainly know. The acts of Congress authorizing issues of currency were the hastily formulated thought of a not very wise body of men, and my informant tells me that they were frequently susceptible of widely different construction by different officials. However that may be, it was clearly out of the power of the government ever to redeem the notes, and whatever may have been the state of affairs within the treasury, nobody outside its precincts ever cared to muddle his head in an attempt to get at exact figures.

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[1] From W. C. Mitchell, *A History of the Greenbacks*, p. 277. University of Chicago Press, 1903.

[2] Adapted from G. C. Eggleston, *A Rebel's Recollections*, pp. 78–93. Hurd & Houghton, 1875.

We knew only that money was astonishingly abundant. Provisions fell short sometimes, and the supply of clothing was not always as large as we should have liked, but nobody found it difficult to get money enough. It was to be had almost for the asking.

Money was so easily got, and its value was so utterly uncertain, that we were never able to determine what was a fair price for anything. We fell into the habit of paying whatever was asked, knowing that tomorrow we should have to pay more. Speculation became the easiest and surest thing imaginable. The speculator saw no risks of loss. Every article of merchandise rose in value every day, and to buy anything this week and sell it next was to make an enormous profit quite as a matter of course.

Naturally enough, speculation soon fell into very bad repute, and the epithet "speculator" came to be considered the most opprobrious in the whole vocabulary of invective. The feeling was universal that the speculators were fattening upon the necessities of the country and the sufferings of the people. Nearly all mercantile business was regarded at least with suspicion, and much of it fell into the hands of people with no reputations to lose, a fact which certainly did not tend to relieve the community in the matter of high prices.

The prices which obtained were almost fabulous, and singularly enough there seemed to be no sort of ratio existing between the values of different articles. I bought coffee at forty dollars and tea at thirty dollars a pound on the same day. My dinner at a hotel cost me twenty dollars, while five dollars gained me a seat in the dress circle of the theater. I paid one dollar the next morning for a copy of the *Examiner*, but I might have got the *Whig*, *Dispatch*, *Enquirer*, or *Sentinel* for half that sum. For some wretched tallow candles I paid ten dollars a pound. The utter absence of proportion between these several prices is apparent, and I know of no way of explaining it except upon the theory that the unstable character of the money had superinduced a reckless disregard of all value on the part of both buyers and sellers. A facetious friend used to say prices were so high that nobody could see them, and that they "got mixed for want of supervision." He held, however, that the difference between the old and the new order of things was a trifling one. "Before the war," he said, "I went to market with the money in my pocket, and brought back my purchases in a basket; now I take the money in the basket, and bring the things home in my pocket."

I am sometimes asked at what time prices attained their highest point in the Confederacy, and I find that memory fails to answer the question satisfactorily. They were about as high as they could be in the fall of 1863, and I should be disposed to fix upon that as the time when the climax was reached, but for my consciousness that the law of constant appreciation was a fixed one throughout the war. The financial condition got steadily worse to the end. I believe the highest price, relatively, I ever saw paid, was for a pair of boots. A cavalry officer, entering the little country store, found there one pair of boots which fitted him. He inquired the price. "Two hundred dollars," said the merchant. A five hundred dollar bill was offered, but the merchant, having no smaller bills, could not change it. "Never mind," said the cavalier, "I'll take the boots anyhow. Keep the change; I never let a little matter of three hundred dollars stand in the way of a trade."

That was on the day before Lee's surrender, but it would not have been an impossible occurrence at any time during the preceding year. The money was of so little value that we parted with it gladly whenever it would purchase anything at all desirable. I cheerfully paid five dollars for a little salt, at Petersburg, in August, 1864, and being thirsty drank my last two dollars in a half-pint of cider.

The government's course in levying a tax in kind, as the only possible way of making the taxation amount to anything, led speedily to the adoption of a similar plan, as far as possible, by the people. A physician would order from his planter friend ten or twenty visits' worth of corn, and the transaction was a perfectly intelligible one to both. The visits would be counted at ante-war rates, and the corn estimated by the same standard.

146. DEPRECIATED MONEY AND WAGE-EARNERS: THE STRIKE AT IQUIQUE[1]

Iquique is a port of Northern Chile on the Pacific Ocean, with a population of about 40,000. The city is built at the water's edge on a low, flat area directly under high, yellow, sand bluffs. Above the bluffs are the pampas, which stretch back in arid wastes into the interior. On these elevated plains are to be found the deposits of minerals and nitrate which have been the basis of the Chilean income since the recent war with Peru. The nitrate *officinas* are supplied with laborers mainly drawn from among the natives, or so-called *rotos*. These men have many good qualities, and are loyal and industrious when well treated; but the exploitation of the *roto* by the employing class is unfortunately not rare. In many instances the laborer is a peon, practically attached to the soil; because, by law, he cannot migrate while he is in debt to his employer and the latter is easily able to make the condition of being indebted practically permanent.

The facts as to the strike at Iquique in December, 1907, were carefully concealed from the outside world by official censorship; but its bloody outcome was an illustration, which should not go unrecorded, of the influence of a bad monetary system upon the labor question. In Chile, before the war with Peru and Bolivia in 1879, the paper money was convertible into gold at 48*d*. per peso. Later, the paper fell to about 36*d*. In recent years, it went to 18*d*., largely because the government confused the fiscal with the monetary functions of the treasury, and borrowed under the form of large issues of paper money. About 1904, the country was caught in a wild whirl of speculation and over-expansion, which came to an end with the frightful earthquake of 1906, especially destructive at Valparaiso. Then the paper subsequently fell as low as 7*d*. or 8*d*. The proposals of redemption forcefully urged upon Congress by President Montt, looking to a restoration of the rate to perhaps 18*d*., have been strongly opposed by those who monopolize the agricultural properties, as well as by employers, such as the producers of nitrate. Nitrate is sold abroad for gold; and the prices in the world's markets have been falling in recent years. Anything, therefore, which would increase their expenses would be vigorously opposed when their returns were being reduced. For this reason they were opposed to any rise of wages. Wages, however, were paid in paper money; and a customary number of pesos per day were always expected by the untutored *rotos*, without much regard to what the paper would buy. The nitrate *officinas*, with the gold obtained from their product, could obviously get more pesos in paper money at the rate of 8*d*. or 12*d*. than at 18*d*. That is, as the rate went up, their labor cost them more relatively to the price of nitrate in gold.

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[1] From J. Laurence Laughlin, "The Strike at Iquique," *Journal of Political Economy*, XVII, 641–43 (November, 1909).

The laborer, on the other hand, was the victim, as always, of a depreciating standard. As the paper money fell in value, the importers and sellers of staple articles raised their prices. Thus, without an understanding of the monetary principles at work, the poor *roto* saw only that his customary wages in paper bought for him less food and satisfactions. He was, in truth, the sufferer from a vicious monetary system, kept in existence for the selfish gain of the classes who had the majority in Congress and who indefinitely postponed the resumption scheme of President Montt. The *roto*, however, has a quick and fiery temper, and when angered he stops at nothing. This natural turning against injustice brought on the pitiful tragedy at Iquique. The *roto* flew in the face of law and order; and by the irony of fate saw the force which had brought on his misery also engaged in crushing him under a heel of iron.

The first hint of impending danger came from the Chinese, who always have their ears to the ground; but their fears were scouted. Then one morning, suddenly, 20,000 strikers from the *officinas* on the arid pampas came pouring over the yellow sand bluffs down into Iquique, and took possession of the city. Houses were barricaded, and the city was left in the hands of a cruel mob. There were no troops on hand to cope with the situation. As subsequent events showed, the leading citizens were marked for death, and the city was to be fired simultaneously in many different places. At this critical moment soldiers were hurriedly despatched by steamer to Iquique, led by an officer of determination—and Chilean soldiers are good fighters. The rioters were maneuvered into a city square where they were massed about a church. Ineffectual efforts were made to induce them to disperse. Instead the leaders of the mob only responded by more fiery speeches. The military sent word that they would fire at 4 o'clock, if the rioters had not then dispersed. This was received with derisive cheers, when 4 o'clock came and no shot was fired. The officer then took out his watch and gave them five minutes in which to withdraw. At five minutes past four the whir of the mitrailleuse began. Piles of dead and dying were heaped up in a moment. Two hundred were killed and three hundred wounded; and the rest fled up the sand bluffs and were lost to sight on the pampas. Thus the innocent victims of a wrongful monetary system were led to their own destruction by a perfectly natural revolt against injustice; and another crime was laid at the door of a fluctuating standard of prices.

XI. CREDIT AND BANKING

147. CREDIT INSTRUMENTS

A promissory note is an unconditional written promise by *X* (the maker) agreeing to pay, either on demand or at a definite future date, a sum of money to *Y* (the payee) or to *Y*'s order or to bearer. It may or may not designate the place at which payment is to be made. Promissory notes may be issued by institutions and governments as well as by individuals. Bank notes, United States notes, certificates of deposit, etc., are forms of the promissory note.

A PROMISSORY NOTE

$500.00 CHICAGO, January 11, 1910

Six months after date I promise to pay to the order of *Y* five hundred dollars with interest at 4 per cent. Value received.

X

A bill of exchange is an unconditional written order, signed by *X* (the person giving the order—the drawer) ordering *Z* (the drawee) to pay, either on demand or at a definite future date, a sum of money to *Y* (the payee) or to *Y*'s order or to bearer. The drawee may indicate his willingness to honor it by signing his name to the word "accepted" written across the face of the bill.

Banker's bills, banker's drafts, banker's exchange, or cashier's checks are bills drawn by one banker and payable by another. Commercial bills are those growing out of some commercial transaction, such as a sale of goods.

A BILL OF EXCHANGE

$500.00 CHICAGO, January 10, 1911

At sixty days' sight pay to the order of *Y* five hundred dollars. Value received. Charge to the account of

To *Z*, New York City *X*

In order to illustrate the use of these instruments, suppose that *X* has bought a bill of goods from *Y*. *X* may pay in one of several ways:

(1) He may "pay cash" and this might be in bank notes, United States notes, gold certificates, etc. (2) He may give *Y* a check on his (*X*'s) bank. (3) He may draw and deliver a bill of exchange on *Z* payable to *Y* or to *Y*'s order. In such a case *Z* was presumably a debtor to *X*. (4) He may give *Y* a promissory note. This will merely defer actual payment. (5) He may "accept" a bill of exchange which *Y* has drawn upon him. (6) He may transfer to *Y* some check or promissory note or bill of exchange which some other person (say, *V*) has drawn to *X*'s order or to bearer. (7) He may buy from his banker a banker's draft or cashier's check drawn (on some other banker) in favor of *Y*. *X* may make this purchase by check or otherwise.

If *X* is in New York and *Y* is in London the payment is likely to take place in one of the following ways: (1) *X* may buy from his banker a (banker's) bill of exchange drawn on some London bank. He will send this to *Y* who will collect from the London bank; (2) if *Z*, in London, owes *X*, *X* may draw a bill of exchange on *Z* in favor of *Y*. He will send this to *Y* who will collect from *Z*. (3) Some other person, *V*, in New York, may have a debtor, *W*, in London. *V* may draw on *W*, payable to *T* or to bearer, and then the bill may be sold in the open market. *X* may buy this in the market, indorse it to the order of *Y*, send it to *Y* who will collect from *W*.

148. THE USE OF CREDIT INSTRUMENTS[1]

1. The volume of business that can be done by credit paper depends on several circumstances. Obviously, in the first place, it depends upon the banking facilities of the country. If the banks are widely distributed, if they are willing to deal in transactions small enough to be within the reach of large numbers of people, many more transactions will be settled through them than would otherwise be the case. This fact undoubtedly explains in large measure the development of what may be called the "banking habit" among the people of the United States. Undoubtedly our people pay by check much more commonly and much more largely than people of any other country.

In the next place, the density of population is, of course, an important factor in the growth of credit exchanges. A larger volume of business is settled by bank paper in a commercial center than in an agricultural community, even though the proportion of total business thus settled may not be larger.

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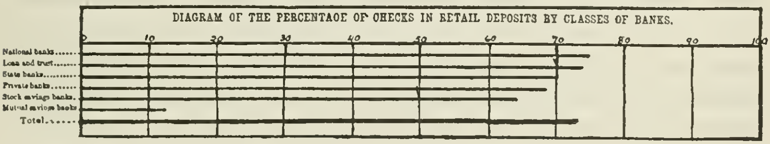
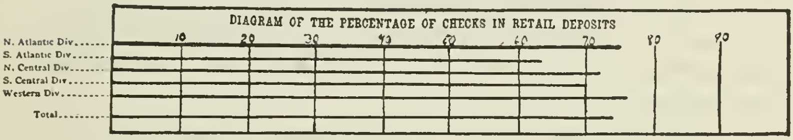
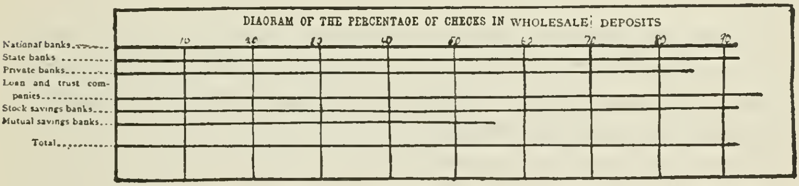
[1] Adapted from David Kinley, *Use of Credit Instruments in Payments in the United States, passim.* National Monetary Commission, 1910.

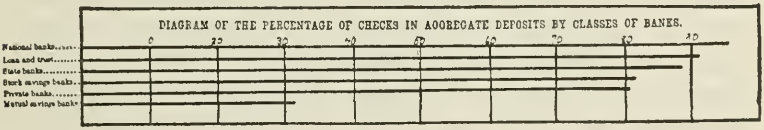
Finally, the general education and intelligence of the mass of the people is an important factor. Men do not use banks unless they have confidence in them, and they have come to be regarded as a settled part of the ordinary commercial mechanism of the community.

2. It is very clear that a large proportion of the business of the country, even in the retail trade, is done by means of credit instruments. We are justified in concluding that 50 or 60 per cent of the retail trade of the country is settled in this way. Over 90 per cent of the wholesale trade of the country is done with checks and other credit documents. We may therefore safely accept an average of 80 to 85 per cent as the probable percentage of business of this country transacted by check.









3. The amount of money released by our credit transactions is not equal in amount to the volume of credit instruments, for there must always be enough to settle the uncanceled balances called for in money from day to day. The amount of money displaced is the

difference between the amount that would be needed in a purely money régime and the amount needed to pay the uncanceled balances of the credit transactions. It is important to note that an increase in the volume of credit transactions does not necessarily mean that we must get a proportionate increase in our reserve of money. Every refinement of the credit mechanism makes it possible to do a larger volume of business on the same reserve.

No one can say, therefore, with definiteness what is the amount of money released if 75 or 80 per cent of our business transactions are settled by means of credit paper. This is a matter in which the long experience of practical bankers is the only safe guide, because the amount in question is changing from day to day as the conditions change. No simple rule about it can be laid down. Certainly, however, it is not 75 per cent of the money which would be necessary if all transactions were settled with money. It is an amount varying from one-third to one-fifth of uncanceled credit balances, according to the perfection of the banking machinery, the state of credit, prosperity, and public confidence.

4. This demand for reserve has an influence in determining the value of money, just as has the demand for money for direct payment.

5. The fact that so large a proportion of business is done with credit paper may or may not be a good thing. Whether it is or not depends on circumstances. If any part of the country is compelled to use checks because of the lack of currency, when it would prefer the latter, the situation is an evil.

In the next place, the settlement of a very large proportion of exchanges by means of credit paper introduces a delicacy of character into the trading mechanism of a community which may cause it to be more easily upset. The larger the volume of credit settlements in proportion to the volume of money settlements, the greater the panic when confidence breaks down and the balance of canceled credit transactions thereby is made larger. A breakdown of confidence means an increase in the amount of transactions that must be settled by ready money. Therefore it is not a safe condition for the country to have the amount of actual money so small for its retail transactions that, when confidence fails, the strain on it will be severely felt. It would be better for the country to have a smaller volume of credit transactions and a larger volume of direct money payments. If the habits of the people preclude this, then there ought to be some means of supplying additional currency when credit as a means of payment diminishes. This currency ought to be as safe and as uniform as the ordinary currency and it should be capable of being quickly emitted and recalled. That is, it should possess elasticity.

6. Such evidence as there is seems to indicate that payment by check has shown an increase during the past few years:

a) In the first place, the returns of our reports show a larger percentage in retail trade.

b) The prosperity of the farmers in the Central West has enabled many to have bank accounts who fifteen years ago could not carry balances.

c) The third evidence is found in the growth of the number of small banks, especially in the country districts. Since national banks have been permitted to establish themselves with a capital of $25,000 their number has increased from 3,617 to 6,926.

d) The appearance of a considerable proportion of checks in the deposits of mutual savings banks is also, to some degree, significant. Of course the credit documents received in the deposits of these banks may be to a considerable extent money orders. Nevertheless their deposits show a certain use of credit paper by the patrons of these banks.

We cannot expect any social movement to continue steadily in one direction for an indefinite time. Such evidence as inquiries of this character furnish seems to show that there is a certain ebb and flow in the proportion of checks used in business payments.

The volume of credit transactions very likely tends to increase as population and business grow. It does not increase uniformly, however, but by periodic movements. That is to say, the rate of increase of credit transactions, as compared with the whole volume of business, grows, as it were, by jerks and at a decreasing rate.

One point needs to be carefully borne in mind. However great the volume of credit exchanges, however extensive the use of credit may become in a community, they can never fully displace sales for direct money payment.

149. THE CLEARING-HOUSE[1]

I. ORGANIZATION AND FUNCTIONS

A clearing-house may be defined as a device to simplify and facilitate the daily exchanges of items and settlements of balances among the banks and a medium for united action upon all questions affecting their mutual welfare. The tendency has been marked, especially in recent years, to include within the legitimate field of clearing-houses all questions affecting the mutual welfare of the banks and the community as a whole. They are gradually becoming a welding force that ultimately will bring to the banking business of this country the centralization which it so greatly needs.

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[1] Adapted from J. G. Cannon, *Clearing Houses*, pp. 1–131. National Monetary Commission, 1910.

The exchange of items between the banks accomplishes two results: First, it places at the proper banks for payment the items to be exchanged which the several banks hold; and, second, it determines the difference between the amount of the items held by each bank against all the others and the amount held by all the other banks against each individual bank. The difference constitutes the balance which is to be settled. The clearing-house acts merely as the agent of the banks in the payment of the balances. It pays to the creditor banks the money it receives from the debtor banks.

The government of a clearing-house association in the United States is, theoretically, vested in a president, vice-president, secretary, treasurer, manager, and a clearing-house committee, sometimes termed "committee of management" or "executive committee." Not every association, however, is as completely officered as this; in fact, there are many associations that do not have the full list of officials named. A president, a manager, and an executive committee, however, are found in the organization of nearly every clearing-house association, for these functionaries are practically indispensable.

The clearing-house association holds an annual meeting for the purpose of electing officers and committees and for the transaction of other business. The quorum is usually fixed at a majority of all the associated banks. In some instances, however, it is fixed at two-thirds, and in a few cases even as low as one-third, of all the members. Sometimes a specified number is designated as constituting a quorum. Each bank is expected to be represented at the annual meeting by one or more of the officers, but usually is allowed only one vote.

The location of the clearing-house is always as near the center of the banking district as possible. It is especially important that this should be so in a large city, where the banks are numerous and often scattered over a considerable area. None of the associations, except the one at New York, owns its clearing-house property. Instead, the various organizations occupy rented quarters, usually in one of the banks belonging to the association, and these they have equipped with the necessary furniture, stationery, and desks for the various members.

The desks are sometimes arranged in straight rows, and sometimes in elliptical curves, and in a few cases they are placed like the desks in a schoolroom. It is not uncommon in small places for the clerks to meet and make their exchanges around a table, and occasionally the same rule prevails in large centers.

Each clearing-house determines for itself the time when its daily exchanges shall be made, and as practically the only criterion in selecting an hour is the convenience of the several members, it is not surprising that there is a wide diversity among associations in this regard.

The rules regulating the kinds of matter to be cleared are by no means uniform. A number of organizations specify in their articles of association what shall be considered proper clearing matter. With but two exceptions, the exchanges passing through the clearing-house are confined to items drawn upon members or upon non-members clearing through members. That is to say, checks and drafts received by a bank member of a clearing-house in any city drawn upon another member of the same clearing-house, from whatever source the checks may have been received, are liquidated through the clearing-house; but checks and drafts received by a member of a clearing-house drawn upon some bank located at a distance, and not a member, nor clearing through a member, are regarded as improper matter for clearing.

The number of messengers required to transport the exchanges to and from the clearing-house varies widely in different cities. When the business is light, as in some of the smaller cities, one person acts as both messenger and settling clerk, while in some of the larger cities the exchanges of some of the banks are so heavy that four or five messengers are necessary to transport them.

Checks are taken to the clearing-house bound together with rubber bands or inclosed in large envelopes, the items that go to each of the members being kept separate. If the bulk is not too great, they are often carried in the hand, but it is customary in the large cities to transport them in leather bags or cases.

The usual rule is that immediately upon his arrival at the clearing-house the settling clerk delivers to the manager, or the assistant manager, a ticket containing the amount of the items brought from his bank.

Two methods of delivering items in the exchange room are in vogue. In the one case they are delivered by all the clerks simultaneously; in the other by each clerk as soon as he arrives at the clearing-room; but the exchanges must all be made before a specified time.

When the clerks begin the exchanges at the same time they all start upon the signal from the manager with their items on their arms or in bags or cases strapped over the back, and proceed in the same direction, passing along the desks until they have deposited all their paper. In the large cities, where the clerks are numerous, order and method are necessary in delivery to prevent confusion and to save time. But in small cities, where the clerks usually deliver their items as soon as they arrive, more liberty is allowed in personal conduct; also by this method an opportunity is afforded to the less proficient clerks to arrive early and list their items as fast as they are delivered to them from the other banks.

When the clearings have been made, the next step is for each settling clerk to determine the amount of the balance of his own bank, which is found by taking the difference between the amount brought to the clearing-house and the amount taken away. A certain amount of time is allowed for the proof. In some cases the settling clerks do not remain until the proof is made, but leave for their respective banks as soon as they make out their tickets for the amounts brought, amounts received, and balances. If the manager of the clearing-house, or his assistant in charge of the proofsheet, finds, after he has made all the entries and additions, that his work does not prove, he first determines whether the error was made by one of the settling clerks or by himself. If by one of the clerks, it is usually discovered in a short time at the bank, whereupon the latter reports the error to the manager at the clearing-house, either by messenger or by telephone. If the bank fails to report the error in due time, the manager takes the debit and credit slips and finds it.

The speed with which the business of a clearing-house is transacted seems almost incredible. The actual time required to make the exchanges varies from one and one-half minutes to ten minutes. When the exchanges are made simultaneously, the time varies, as a rule, in proportion to the number of members. In view of the shortness of time required to make its exchanges, the New York Clearing-House affords, perhaps, the best example in existence of the success of modern business methods as compared with the old way of doing things. The clearances exceed on the average $300,000,000, and yet this enormous amount of paper is exchanged between the banks in ten minutes, and often in less time.

The clearing-houses in the United States may be divided into two classes, the sole function of the first of which consists in clearing notes, drafts, checks, bills of exchange, and whatever else may be agreed upon, and the second of which, in addition to exercising the functions of the class just mentioned, prescribes rules and regulations for the control of its members in various matters. The most important of the special functions of a clearing-house are (*a*) the extending of loans to the government, (*b*) mutual assistance of members, (*c*) fixing uniform rates of interest on deposits, (*d*) fixing uniform rates of exchange and of charges on collections, and (*e*) the issue of clearing-house loan certificates.

Clearing-houses may also be divided into two classes with reference to the funds used in the settlement of balances: First, those clearing-houses which make their settlements entirely on a cash basis, and second, those clearing-houses which make their settlements on some other basis. There are no less than five different methods of settling balances, in whole or in part, without the use of money at the clearing-house. They are (1) by manager's check on debtor banks given to creditor banks; (2) by borrowing and loaning balances without interest; (3) by borrowing and loaning balances with interest; (4) by the use of one or more of four forms of certificates, viz., gold and currency depository certificates, United States assistant treasurer certificates, and clearing-house loan certificates; and (5) by draft on another city.

Generally speaking, about 40 per cent of the clearing-houses of the United States use drafts on other cities in paying their balances. About 30 per cent settle by manager's check, and about 25 per cent settle by cash alone, the remaining 5 per cent settling by a combination of two or more of the foregoing methods.

Any kind of United States money is acceptable in most of the small clearing-houses; but in a majority of the large ones certain kinds of money are not acceptable.

II. CLEARING-HOUSE LOAN CERTIFICATES

Clearing-house certificates are of two kinds—those issued upon the deposit of gold coin (and in New York City and Boston on gold and silver certificates and legal-tender notes) and those issued upon the deposit of collateral securities. The former are employed in ordinary times solely as a method of economizing time and labor and reducing risk in handling large sums of money. The latter are employed in times of financial disturbance or panic, and although both are intended for use solely in the settlement of balances at the clearing-house, the circumstances that call them forth, the results effected by their use, and the part they play in banking economy have little or nothing in common. The certificates issued upon the deposit of gold, etc., are termed "Clearing-house certificates," and those issued upon the deposit of collateral security are very properly termed "Clearing-house loan certificates," with which latter only are we here concerned.

Clearing-house loan certificates may be defined as temporary loans made by the banks associated together as a clearing-house association, to the members thereof, for the purpose of settling clearing-house balances. Such certificates are negotiable, as a rule, only among the members of the association, and are not in any sense to be regarded as currency. They are not even seen by the business community, and do not pass from bank to bank except in payment of clearing-house balances.

The great value of clearing-house loan certificates lies in the fact that they take the place of money in settlements at the clearing-house, and hence save the use of so much actual cash, leaving the amount to be used by the banks in making loans and discounts, and in meeting other obligations. The volume of currency, to all intents and purposes, is expanded by this means to the full amount of the certificates issued. When the stringency in the money market seems sufficient to demand it, the clearing-house association meets and appoints a committee called the "loan committee," consisting usually of five bank officers, to act in concurrence with the president of the clearing-house association, who serves *ex officio* as a member. It is the duty of such committee to meet each morning at the clearing-house and examine the collateral offered as security by the banks and issue loan certificates thereon, in such denominations and proportions to collaterals deposited as may be agreed upon. In the past the denominations have varied from 25 cents to $100,000 in the different associations and in proportions varying from $50 to $100 of certificates to $100 of collateral deposited.

These loan certificates bear interest at rates varying from 5 to 10 per cent per annum, payable by the banks to which they are issued to the banks receiving such certificates in settlement of daily balances. The aim is to fix the rates sufficiently high to insure the retirement of the certificates as soon as the emergency which called them forth has passed by.

It is by no means the general practice for all the members to take out loan certificates when issues are arranged by the association.

The total amount of its balances is not always paid in clearing-house loan certificates by a bank to which such certificates have been issued. Some banks are in such condition as to be able to weather the storm without them, while others are weak and in great need of relief.

III. CLEARING-HOUSE LOAN CERTIFICATES USED AS CURRENCY

Two things are characteristic of the Atlanta certificates [of 1893] which are not to be found in any of those [previously issued]. In the first place they were issued to the extent of only 66⅔ per cent of the collateral deposited as compared with a minimum of 75 per cent in the other associations; and in the second place it [was stated] on the certificates that they "will be received on deposit or in payment of debts due any bank in said clearing-house"—an implication that they were used for general circulation, which, indeed, is true. [The denominations were $5, $10, $100, and $500.]

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BIRMINGHAM CLEARING-HOUSE CERTIFICATE

No..... BIRMINGHAM, ALA...............1893

THIS CERTIFIES that the .... Bank, of Birmingham, Ala., has deposited with the undersigned Committee of the Birmingham Clearing-House, securities to the value of ONE DOLLAR, to secure to the bearer hereof the payment of the sum of FIFTY CENTS, in lawful money of the United States, payable at any time after ninety days from date hereof.

This Certificate will be received on deposit by any Bank or Banker of the Birmingham Clearing-House at par.

....

Countersigned: ....

....

Cashier *Committee*

FORM OF CLEARING-HOUSE LOAN CERTIFICATE USED IN BIRMINGHAM, ALA.

In June, 1893, the Clearing-House Association at Birmingham recommended the use of clearing-house loan certificates. Like the certificates in Atlanta, they were intended for general circulation among the customers of the banks, but, unlike any certificates previously mentioned, they were issued to the extent of only 50 per cent of the collateral required. The denominations first used were $1,000, $500, $100, $50, $10, and $5. Certificates of $2, $1, 50 cents, and 25 cents were subsequently issued. No other association in the United States had previously compared with the one at Birmingham in the comprehensiveness of its currency system and in the extent to which it was projected on this occasion.

In 1893, there was a considerable amount of emergency circulation taken out by the banks in the Southeast, under the title of "clearing-house certificates," in cities where no clearing-houses existed. In adopting the name of clearing-house certificates, it was not the purpose of the banks to practice deception on the people, but to indicate what was really true and what the term would seem to imply, namely, that such certificates were temporary loans made by the banks associated together, and that the banks were pledged for their redemption.

No. 596 BALTIMORE CLEARING-HOUSE

Baltimore,............18

This is to Certify:

That the..

has deposited with the Committee appointed by the Associated Banks on June 24th, 1893, Approved Securities, which are held as a Special Deposit to secure the redemption of this Certificate in compliance with resolutions adopted by said Banks on the day above named.

This Certificate will be received for the sum of One Thousand Dollars without endorsement, in settlement of balances resulting from the exchanges between the Banks, will bear interest at the rate of six per cent per annum until redeemed, and will be negotiable only between the Associated Banks.

$1,000 ....*Manager*

Form of Clearing-House Loan Certificate Used in Baltimore

On October 26, 1907, the same day on which the New York association took its action, the Clearing-House Association at Chicago met and passed resolutions authorizing the issue of clearing-house loan certificates, under conditions very similar to those governing their issue by other large cities. The certificates were issued under the supervision of the clearing-house committee to the extent of 75 per cent of the market value of the collateral deposited and bore interest at the rate of 7 per cent.

[By resolutions passed November 6 and 13, 1907, the Chicago Clearing-House Association provided for the issue of clearing-house checks, as follows:]

"Any bank, being a member of the Chicago Clearing-House Association, may at any time surrender to the clearing-house committee any loan certificate held by it which was issued under said principal agreement of October 29, 1907, to any member of the association and receive in lieu thereof checks to the amount of the principal thereof in denominations of $1, $2, $5, and $10, as desired, drawn by or under the direction of the clearing-house committee on the following banks designated for that purpose, viz., the First National Bank, the Corn Exchange National Bank, the Continental National Bank, and the Commercial National Bank, and made payable through the Chicago clearing-house or to the bank, or bearer, applying therefor, as aforesaid, which checks shall not draw interest."

This Check Is Payable Only through the Chicago Clearing-House and Must Be Collected through a Bank

THIS
CHECK
IS FOR
TEN
DOLLARS

Chicago, November 11th, 1907 No. D 14800 1
CHICAGO CLEARING-HOUSE ASSOCIATION
Pay to Continental National Bank *or bearer* $\$10\frac{00}{100}$
Ten and $\frac{00}{100}$ ______________________ Dollars

Manager

To
The First National Bank of Chicago ______________ *Assistant Secretary*

This Check Is Protected by Securities Deposited with the Chicago Clearing-House Association

Form of Clearing-House Check Used in Chicago

Thus it will be seen that the Chicago Clearing-House Association issued checks in amounts of $1, $2, $5, and $10 designed for general circulation, to the extent of about $7,500,000, secured by clearing-house loan certificates, which in turn were secured by 133 per cent of good collateral. The aggregate amount of clearing-house loan certificates issued in Chicago was $39,240,000, and the maximum amount outstanding was $38,285,000 on December 18, 1907.

[In 1907] many of the clearing-houses of the country issued clearing-house checks, or cashier's checks, generally under proper safeguards, in small denominations, which were intended for general use, to take the place of cash temporarily withdrawn from circulation.

[In Canton, Ohio,] clearing-house checks, or cashier's checks, payable to bearer through the clearing-house only, in amounts of $1, $2, $5, and $10, were issued to the extent of about $200,000. These checks had no collateral security back of them, and were accepted purely on the responsibility of the issuing bank. A specimen of this check is shown herewith.

$5.00 CANTON, OHIO, November 11, 1907

Pay to the Bearer

FIVE DOLLARS *FIVE DOLLARS* $5.00

Payable only through the Canton Clearing-House.

THE CITY NATIONAL BANK

Cashier

FORM OF CLEARING-HOUSE CHECK USED AT CANTON

Most of the clearing-houses that issued both clearing-house loan certificates and clearing-house checks secured the checks by the deposit of loan certificates, which were secured by collateral, but at Los Angeles both the loan certificates and the scrip were directly secured by collateral, the former to the extent of 133 per cent, and the latter by securities valued at 200 per cent of the amount issued.

150. THE JOURNEY OF A CHECK[1]

The check, which was for $43.56, was drawn by Woodward Brothers, of Sag Harbor, N.Y., and paid to Berry, Lohman & Rasch, of Hoboken, N.J., who deposited it in the Second National Bank of Hoboken. This bank sent it to Harvey Fisk & Sons, of New York, who, having no regular correspondent in the neighborhood of the bank on which it was drawn, sent it, along with other collections, to their Boston correspondent, the Globe National Bank. The Globe National Bank of Boston, for reasons that are not apparent, sent it, presumably with other items, to its correspondent at Tonawanda, N.Y., viz., the First National Bank of that city. The Tonawanda bank, evidently realizing that the check had wandered far out of its course, and in an effort to get it nearer home, transmitted it to the National Exchange Bank of Albany, which institution, pursuing the same commendable policy, remitted it to its correspondent at Port Jefferson. The First National Bank of Port Jefferson, which thus got possession of the check, again diverted its course by inclosing it to the Far Rockaway Bank. The Far Rockaway Bank sent it back to New

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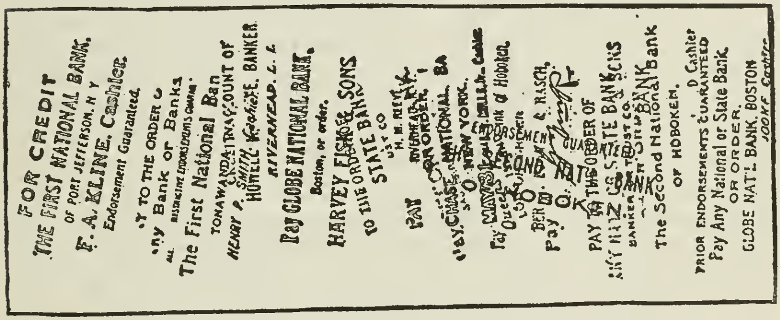
[1] Adapted from J. G. Cannon, *Clearing Houses*, pp. 70–74. National Monetary Commission, 1910.

York, to the Chase National Bank, and thus this much-traveled check made its second call in the metropolis. The Chase National Bank, it would appear, endeavored to correct the wanderer's course, and so dispatched it to Riverhead, to H. M. Reeve. Mr. Reeve, either because he really knew where to send it for collection, or because of a lucky hit, forwarded it to the Queens County Bank of Brooklyn, which finally sent it home to the Peconic Bank of Sag Harbor, on which it was drawn.

The reason why banks forward checks in this apparently unreasonable way, often getting the items far out of their regular course, is easy to explain. It sometimes appears cheaper to the bank which has the check in hand to inclose it with other items to some regular correspondent, which, assumedly, is nearer the bank on which the check is drawn, than to hunt up a special correspondent for it alone. Once started, the poor check gets pushed along from station to station, on its erratic course, until such time as, by accident or otherwise, it finds its final lodgment.


FOR CREDIT
THE FIRST NATIONAL BANK,
OF PORT JEFFERSON, N. Y.
F. A. KLINE, Cashier.
Endorsement Guaranteed.
The First National Ban
RIVERHEAD, L. I.
Pay GLOBE NATIONAL BANK,
Boston, or order.
HARVEY FISK & SONS
H. M. REEVE
NEW YORK.
The Second National Bank
OF HOBOKEN.
PRIOR ENDORSEMENTS GUARANTEED
Pay Any National or State Bank,
OR ORDER.
GLOBE NAT'L BANK, BOSTON

The reader may estimate for himself the volume of correspondence which this one check caused, from the time it was drawn by Woodward Brothers until it was paid by the Peconic Bank, and the amount of postage and cost of clerical work expended upon it. No better argument than the facts here presented is needed to support the proposition of charging a reasonable sum for collecting out-of-town checks. No better illustration than this could be presented to the business man for demonstrating to him the weight of the burden he puts on the banking machinery of the community by remitting his check on a country bank, in payment of an account, instead of purchasing exchange.

151. WEEKLY STATEMENT ISSUED BY THE FEDERAL RESERVE BOARD ON JUNE 12, 1915[1]

A gain of over 13 million dollars in the cash reserves, of 3.7 in the gold reserves, and a decrease of about 8 million dollars in the amount of short-term municipal paper held is indicated by the weekly statement of the condition of each of the Federal Reserve banks and the consolidated statement for the system as a whole as at close of business on June 11, 1915.

The largest increase, of 5.1 million dollars, in its gold reserve is reported by the New York bank. Boston reports a gain of 1.0 million dollars, and smaller gains in their gold holdings are shown for the San Francisco and Kansas City banks. The combined gain reported by these banks is, however, offset to a large extent by the loss of 4.2 million dollars in the gold reserve reported by the Chicago bank.

Loans and discounts show a gain of 1.3 millions. All the banks except Philadelphia and Dallas report substantial increases over the figures of the preceding week. About 41 per cent of all the paper held matures within 30 days, and almost 71 per cent within 60 days. Over 3.8 million dollars of agricultural and live-stock paper, maturing after 90 days, is reported among the assets of the banks. The holdings of this type of paper constitute now 10.7 per cent of the total amount of paper in the hands of the banks. Of the total of 24.9 millions of discounts proper, the three Southern banks held about 71 per cent, San Francisco with 1.8 million dollars of rediscounts being the only other bank to show any large activity in the discount field. Acceptances totaled 11.1 millions, as against 10.2 millions at the end of the previous week. Boston with 2.2 million dollars, New York with 4.7 million dollars and San Francisco with 1.1 million dollars increased their holdings during the week. Additional purchases of $90,000 of United States bonds by the Cleveland bank and $75,000 by the Chicago bank increase the total of United States bonds held by all the banks to about 7.2 millions.

Net deposits increased about 11.4 millions during the week, New York, Chicago, and Boston showing the largest gains. Federal Reserve Agents report a total note circulation of $74,595,500, distributed as follows: Boston, $3,320,000; New York, $35,100,000; Philadelphia, $2,420,000; Cleveland, $3,300,000; Richmond, $7,500,000; Atlanta, $4,950,000; Chicago, $4,380,000; St. Louis, $625,500; Minneapolis, $2,860,000; Kansas City, $3,100,000; Dallas, $5,000,000, and San Francisco, $2,040,000. The amount of gold deposited with the agents to secure circulation is given as $61,431,000.

The banks report $7,271,000 of notes on hand and a net liability on account of their outstanding circulation of $12,098,000.

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[1] Adapted from the *Commercial and Financial Chronicle*, C, 2067.

STATEMENT OF COMBINED RESOURCES AND LIABILITIES OF THE FEDERAL RESERVE BANKS AT CLOSE OF BUSINESS, JUNE 11, 1915

RESOURCES	
Gold coin and certificates	$246,231,000
Legal-tender-notes, silver certificates and subsidiary coin	44,632,000
Total	$290,863,000
Bills discounted and loans:	
Maturities within 30 days	$ 14,721,000
Maturities within 60 days	10,818,000
Other	10,468,000
Total	$ 36,007,000
Investments	17,183,000
Due from federal reserve banks: items in transit	14,878,000
All other resources	12,350,000
Total resources	$371,281,000

LIABILITIES	
Capital paid in	$ 54,195,000
Reserve deposits	299,653,000
Federal reserve notes in circulation (net liability)	a 12,098,000
All other liabilities	5,335,000
Total liabilities	$371,281,000
Gold reserve against net liabilities (b)	82.9%
Cash reserve against net liabilities (b)	98.0%
Cash reserve against liabilities after setting aside 40 per cent gold reserve against net amount of federal reserve notes in circulation (b)	100.4%

(a) Federal reserve notes: gross liability 73,529,000
Deduct: gold and lawful money in hands of federal reserve agents for retirement of outstanding notes 61,431,000
Net liability of reserve banks upon outstanding notes $12,098,000

(b) After deduction of items in transit between federal reserve banks, viz $14,878,000

RESOURCES AND LIABILITIES OF EACH OF THE TWELVE FEDERAL RESERVE BANKS AT CLOSE OF BUSINESS, JUNE 11, 1915

	Boston	New York	Philadelphia	Cleveland	Richmond	Atlanta	Chicago	St. Louis	Minneapolis	Kansas City	Dallas	San Francisco
Resources:	$	$	$	$	$	$	$	$	$	$	$	$
Gold coin and certificates	14,746,000	108,408,000	17,679,000	16,789,000	7,615,000	5,506,000	31,337,000	10,272,000	8,468,000	9,459,000	5,707,000	10,245,000
Legal-tender notes, silver certificates and subsidiary coin	629,000	35,224,000	2,841,000	766,000	89,000	324,000	2,450,000	1,204,000	8,000	463,000	627,000	7,000
Total	15,375,000	143,632,000	20,520,000	17,555,000	7,704,000	5,830,000	33,787,000	11,476,000	8,476,000	9,922,000	6,334,000	10,252,000
Bills discounted and loans	2,572,000	5,196,000	1,449,000	1,092,000	7,282,000	4,345,000	1,775,000	1,005,000	1,018,000	1,262,000	6,152,000	2,859,000
Investments	1,878,000	2,149,000	1,191,000	1,593,000	1,000	....	5,797,000	568,000	1,438,000	1,095,000	....	1,473,000
Due from other federal reserve banks—net	1,099,000	....	2,989,000	1,889,000	1,190,000	534,000	8,591,000	1,276,000	271,000	199,000	295,000	1,037,000
All other resources	1,434,000	1,644,000	503,000	844,000	114,000	103,000	2,553,000	2,760,000	302,000	498,000	154,000	1,441,000
Total resources	22,358,000	152,621,000	26,652,000	22,973,000	16,291,000	10,812,000	52,503,000	17,085,000	11,505,000	12,976,000	12,935,000	17,062,000
Liabilities:												
Reserve deposits	17,052,000	133,472,000	20,424,000	17,997,000	8,016,000	5,463,000	45,898,000	14,297,000	9,087,000	9,631,000	6,187,000	13,129,000
Due to other federal reserve banks—net	....	4,492,000	....	....	....	....	....	....	....	....	....	....
Federal reserve notes in circulation—net amount	....	....	....	....	4,836,000	2,896,000	....	....	....	562,000	3,804,000	....
Capital paid in	4,802,000	9,962,000	6,228,000	5,967,000	3,362,000	2,414,000	6,605,000	2,788,000	2,418,000	2,783,000	2,924,000	3,933,000
All other liabilities	504,000	4,695,000	....	....	77,000	39,000	....	....	....	....	20,000	....
Total liabilities	22,358,000	152,621,000	26,652,000	22,973,000	16,291,000	10,812,000	52,503,000	17,085,000	11,505,000	12,976,000	12,935,000	17,062,000

152. STATEMENT OF THE NEW YORK CLEARING-HOUSE BANKS FOR THE WEEK ENDING JUNE 12, 1915

All figures are in hundreds of dollars (00 omitted)

Clearing-house Members	Capital	Net Profits	Loans Discounts Investm'ts, &c.	Gold	Legal Tenders	Silver	National Bank Notes [Reserve for State Institutions]	National Bank Notes [Not Counted as Reserve]	Federal Reserve Bank Notes [Not Reserve]	Reserve with Legal Depositaries	Excess Due from Reserve Depositaries	Net Demand Deposits	Net Time Deposits	National Bank Circulation
	Nat. Banks May 1 State Bks. Mar. 19													
Members of Federal Reserve Bank:	$	$	Average $	Average $	Average $	Average $	Average $	Average $	Average $	Average $	Average $	Average $	Average $	Average $
Bank of N.Y., N.B.A.	2,000,0	4,669,5	30,422,0	2,289,0	796,0	457,0	....	4,0	2,0	2,011,0	....	26,918,0	1,348.0	800,0
Merchants' Nat. Bank	2,000,0	2,173,2	25,158,0	1,505,0	379,0	722,0	....	23,0	25,0	1,675,0	....	23,495,0	....	1,918,0
Mech. & Metals Nat.	6,000,0	9,251,3	91,394,0	9,183,0	7,364,0	8,588,0	....	113,0	57,0	7,615,0	....	99,949.0	4,796,0	5,000.0
National City Bank	25,000,0	35,449,5	243,681,0	98,240,0	10,689,0	3,041,0	....	323,0	639,0	30,946,0	....	318,631,0	1,379,0	3,363,0
Chemical Nat. Bank	3,000,0	7,945,7	30,327,0	5,267,0	774,0	985,0	....	50,0	....	2,369,0	....	28,302,0	175,0	440,0
Merchants' Exch. Nat	1,000,0	793,4	9,735,0	568,0	177,0	316,0	....	19,0	....	856,0	....	9,450,0	42,0	473,0
Nat. Butchers' & Drovers'	300,0	72,9	1,912,0	50,0	40,0	130,0	....	10,0	....	136,0	....	1,791,0	103,0	50,0
Amer. Exch. Nat. Bank	5,000,0	4,813,1	69,055,0	4,663,0	1,702,0	1,336,0	....	172,0	29,0	5,598,0	....	66,288,0	2,181,0	4,472,0
National Bank of Com	25,000,0	17,618,4	168,048,0	17,618,0	3,670,0	2,818,0	....	74,0	45,0	12,855.0	....	158,676,0	125,0	3,888,0
Chatham & Phenix Nat.	2,250,0	1,412,3	26,568,0	1,417,0	302,0	1,087,0	....	122,0	45,0	1,943.0	....	26,069,0	605,0	1,176,0
Hanover National Bank	3,000,0	15,298,7	89,099,0	18,657,0	2,889,0	6,227,0	....	48,0	53,0	8,298,0	....	106,626,0	....	305,0
Citizens' Central Nat.	2,550,0	2.485,1	25,235,0	1,148,0	158,0	1,134,0	....	76,0	24,0	1,777,0	....	21,839,0	1,280,0	1,640,0
Market & Fulton Nat.	1,000,0	1,989,5	8,804,0	856,0	729,0	777,0	....	187,0	13,0	922,0	....	9,218,0	....	108,0
Importers' & Traders'	1,500,0	7,727,0	29,222,0	2,421,0	1,405,0	1,040,0	....	106,0	....	2,014,0	....	26,939,0	....	50.0
National Park Bank	5,000,0	15,339,0	110,063,0	10,427,0	685,0	3,134,0	....	262,0	....	8,219,0	....	108,467,0	381,0	3,580.0
East River Nat. Bank	250,0	59,5	1,849,0	78,0	42,0	139,0	....	13,0	....	174,0	....	2,066,0	....	50,0
Second National Bank	1,000,0	3,145,5	15,422,0	921,0	356,0	587,0	....	83,0	67,0	1,029,0	....	12,754,0	....	685,0
First National Bank	10,000,0	22,624.4	135,522,0	13,416,0	3,301,0	3,304,0	....	58,0	1,0	9,647,0	....	128,267,0	125,0	5,077,0
Irving National Bank	4,000,0	3,784,1	50,715,0	6,598,0	847,0	2,600,0	....	24,0	316,0	4,117,0	....	56,441,0	112,0	740.0
N.Y. County Nat. Bank	500,0	1,468,7	9,802,0	427,0	157,0	447,0	....	169,0	8,0	669,0	....	9,535,0	....	200,0
Chase National Bank	5,000,0	9,600,3	133,336,0	15,671,0	4,470,0	2,835,0	....	93,0	164,0	10,848,0	....	151,605,0	753,0	450,0
Lincoln National Bank	1,000,0	1,875,8	15,959,0	846,0	715,0	376,0	....	87,0	25,0	1,086,0	....	15,445,0	32,0	890.0
Garfield National Bank	1,000,0	1,245,7	8,679,0	554,0	287,0	789,0	....	54,0	9,0	775,0	....	8,620,0	....	350.0
Fifth National Bank	250,0	405,4	4,470,0	160,0	115,0	227,0	....	6,0	....	339,0	....	4,529,0	47.0	246,0
Seaboard National Bank	1,000,0	2,820,1	28,989,0	2,378,0	835,0	1,762,0	....	51,0	8,0	3,091,0	....	33,272,0	100.0	405,0
Liberty National Bank	1,000,0	2,925.4	33,968,0	3,985,0	1,001,0	720,0	....	14,0	64,0	2,549,0	....	35,274,0	2,486,0	500,0
Coal & Iron Nat. Bank	1,000,0	666,0	7,745,0	420,0	149,0	272,0	....	16,0	5,0	537,0	....	7,603,0	....	396,0
Union Exchange Nat.	1,000,0	994.4	10,619,0	294,0	160,0	1,007,0	....	21,0	15,0	760,0	....	10,233,0	51,0	400,0
Nassau Nat. Brooklyn	1,000,0	1,116,2	8,580,0	326,0	126,0	361,0	....	44,0	....	568,0	....	7,753,0	6,0	267,0
Totals, average for week	112,600,0	179,770,1	1,424,378,0	220,383,0	44,320,0	47,218,0	....	2,322,0	1,614,0	123,423,0	....	1,516,055,0	16,127,0	37,937,0

State Banks (not members of Federal Reserve Bank):	$	$	$	$	$	$	$	$	$	$	$	$	$	$
Bank of Manhattan Co..	2,050,0	4,882,4	34,840,0	8,930,0	5,780,0	3,041,0	95,0	....	....	....	....	46,460,0	....	....
Bank of America........	1,500,0	6,194,1	31,326,0	3,655,0	1,487,0	940,0	56,0	....	....	....	....	29,688,0	....	....
Greenwich Bank........	500,0	1,162,3	10,281,0	1,135,0	170,0	453,0	376,0	....	....	524,0	....	11,166,0	62,0	....
Pacific Bank...........	500,0	995,3	4,938,0	297,0	734,0	86,0	213,0	....	....	....	....	4,726,0	....	....
People's Bank..........	200,0	453,9	1,985,0	149,0	78,0	111,0	25,0	....	2,0	138,0	208,0	2,308,0	8,0	....
Metropolitan Bank......	2,000,0	1,894,2	12,029,0	840,0	672,0	502,0	60,0	....	7,0	....	....	10,052,0	....	....
Corn Exchange Bank....	3,500,0	7,225,4	74,694,0	8,377,0	2,629,0	4,761,0	1,514,0	....	....	4,000,0	....	86,854,0	....	....
Bowery Bank...........	250,0	765,1	3,489,0	282,0	25,0	59,0	55,0	....	....	187,0	69,0	3,109,0	....	....
German-American Bank..	750,0	691,1	4,432,0	486,0	125,0	68,0	11,0	....	....	200,0	....	4,177,0	....	....
Fifth Avenue Bank......	100,0	2,296,2	13,938,0	2,186,0	553,0	947,0	72,0	....	....	....	....	15,056,0	....	....
German Exchange Bank..	200,0	812,9	3,643,0	509,0	113,0	170,0	86,0	....	....	209,0	637,0	3,646,0	....	....
Germania Bank.........	200,0	1,012,7	5,656,0	543,0	51,0	154,0	103,0	....	....	256,0	....	5,544,0	....	....
Bank of Metropolis......	1,000,0	2,137,0	13,047,0	1,629,0	490,0	1,005,0	145,0	....	....	....	....	13,090,0	....	....
West Side Bank.........	200,0	698,8	4,196,0	299,0	215,0	120,0	28,0	....	....	151,0	....	4,173,0	....	....
N.Y. Produce Exchange..	1,000,0	929,4	11,149,0	2,279,0	544,0	509,0	135,0	....	....	....	....	12,751,0	....	....
State Bank.............	1,500,0	472,4	18,614,0	1,052,0	525,0	525,0	526,0	....	....	1,200,0	92,0	20,171,0	14,0	....
Security Bank..........	1,000,0	301,3	10,553,0	620,0	106,0	354,0	179,0	....	....	557,0	1,297,0	9,289,0	3,204,0	....
Totals, average for week	16,450,0	32,924,5	258,810,0	33,268,0	14,297,0	13,805,0	3,679,0	....	9,0	7,422,0	2,303,0	282,260,0	3,288,0	....
Trust Companies (not members of Federal Reserve Bank):														
Brooklyn Trust Co......	1,500,0	3,361,0	29,584,0	1,463,0	171,0	398,0	140,0	....	28,0	1,049,0	2,948,0	20,984,0	6,944,0	....
Bankers' Trust Co.......	10,000,0	12,816,4	161,349,0	13,299,0	20,0	129,0	17,0	....	6,0	6,685,0	6,491,0	133,708,0	28,853,0	....
U.S. Mtg. & Trust Co...	2,000,0	4,265,3	47,679,0	2,901,0	93,0	161,0	127,0	....	....	1,626,0	8,091,0	35,523,0	13,738,0	....
Astor Trust Co.........	1,250,0	1,107,9	22,680,0	1,448,0	8,0	151,0	103,0	....	....	861,0	1,312,0	17,389,0	5,303,0	....
Title Guar. & Trust Co..	5,000,0	11,605,6	37,593,0	1,873,0	125,0	150,0	211,0	....	16,0	1,155,0	3,269,0	23,103,0	680,0	....
Guaranty Trust Co......	10,000,0	22,727,8	237,593,0	18,307,0	3,616,0	3,818,0	541,0	....	....	1,541,0	22,278,0	176,078,0	28,329,0	....
Fidelity Trust Co.......	1,000,0	1,304,2	8,583,0	493,0	129,0	97,0	28,0	....	....	363,0	299,0	7,272,0	62,0	....
Lawyers' Title & Trust...	4,000,0	5,067,7	21,034,0	1,098,0	131,0	56,0	40,0	....	16,0	662,0	399,0	13,247,0	545,0	....
Columbia Trust Co......	2,000,0	7,311,1	64,056,0	3,425,0	103,0	818,0	278,0	....	45,0	2,298,0	4,689,0	45,968,0	15,621,0	....
People's Trust Co.......	1,000,0	1,419,5	17,298,0	1,058,0	86,0	270,0	272,0	....	19,0	820,0	2,401,0	16,422,0	922,0	....
New York Trust Co.....	3,000,0	11,618,1	46,755,0	3,086,0	135,0	73,0	13,0	....	73,0	1,615,0	6,918,0	31,622,0	5,315,0	....
Franklin Trust Co.......	1,000,0	1,090,9	16,508,0	816,0	87,0	108,0	100,0	....	2,0	552,0	1,728,0	11,039,0	4,941,0	....
Lincoln Trust Co........	1,000,0	526,6	10,522,0	652,0	32,0	290,0	55,0	....	9,0	946,0	1,108,0	9,929,0	540,0	....
Metropolitan Trust Co...	2,000,0	6,103,4	40,341,0	2,215,0	503,0	515,0	245,0	....	9,0	1,564,0	430,0	31,278,0	5,811,0	....
Broadway Trust Co.....	1,500,0	894,6	15,236,0	1,238,0	109,0	511,0	371,0	....	....	788,0	2,287,0	15,755,0	43,0	....
Totals, average for week	46,250,0	91,220,1	776,811,0	53,372,0	5,348,0	7,545,0	2,541,0	....	223,0	22,075,0	64,653,0	589,317,0	117,647,0	....
Grand aggregate, average	175,300,0	303,914,7	2,459,999,0	307,023,0	63,965,0	68,568,0	6,220,0	2,322,0	1,846,0	152,920,0	66,956,0	2,387,632,0	137,062,0	37,937,0
Comparison previous week	....	....	+19,714,0	+7,029,0	−967,0	−4,323,0	+374,0	+47,0	+155,0	−1,406,0	−3,912,0	+19,482,0	+3,507,0	+60,0

152. STATEMENT OF CLEARING-HOUSE BANKS—*Continued*

STATEMENTS OF RESERVE POSITION

	Averages					
	Cash Reserve in Vault	Reserve in Depositaries	Total Reserve	*Reserve Required	Surplus Reserve	Increase or Decrease from Previous Week
	$	$	$	$	$	$
Members federal reserve bank	311,921,000	123,423,000	435,344,000	273,696,250	151,647,750	− 307,170
State banks	65,049,000	7,422,000	72,471,000	50,806,800	21,664,200	−3,895,880
Trust companies	68,806,000	22,075,000	90,881,000	88,397,550	2,483,450	+1,364,700
Total, June 12	445,776,000	152,920,000	598,696,000	412,900,600	185,759,400	−2,838,350

	Actual Figures					
	Cash Reserve in Vault	Reserve in Depositaries	Total Reserve	†Reserve Required	Surplus Reserve	Increase or Decrease from Previous Week
	$	$	$	$	$	$
Members federal reserve bank	317,232,000	127,557,000	444,809,000	275,884,680	168,924,320	+6,028,600
State banks	67,809,000	7,551,000	75,360,000	50,916,420	24,443,580	+2,747,200
Trust companies	65,922,000	24,027,000	89,949,000	88,160,400	1,788,600	+ 111,450
Total, June 12	450,963,000	159,155,000	610,118,000	414,961,500	195,156,500	+8,887,250

* This is the reserve required on net demand deposits in the case of state banks and trust companies, but in the case of members of the federal reserve banks it includes also the amount of reserve required on net time deposits, which was $806,350.

† This is the reserve required on net demand deposits in the case of state banks and trust companies, but in the case of members of the federal reserve banks it includes also the amount of reserve required on net time deposits, which was $808,500.

153. STATEMENTS OF TYPICAL AMERICAN BANKS

New York Federal Reserve Bank

STATEMENT OF CONDITION AT THE CLOSE OF BUSINESS JULY 30, 1915[1]

Resources

Gold coin and gold certificates—		
Gold settlement fund	$ 13,733,000.00	
Gold in vault	114,380,962.50	
Total gold reserve	$128,113,962.50	
Legal tender notes, silver certificates, and subsidiary coin	12,736,365.20	
Total reserve		$140,850,327.70
Bills discounted and bought—		
Commercial paper	$ 587,398.43	
Bank acceptances	5,536,766.17	
Total		6,124,164.60

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[1] Adapted from *The American Banker*, LXXX, 2420.

Investments—		
Municipal warrants	$ 5,688,422.74	
Federal Reserve notes (net)	$ 6,262,940.00	
All other resources	326,278.33	
Total		12,277,641.07
Total resources		$159,252,133.37

Liabilities

Capital	$ 10,823,800.00
Reserve deposits (net)	142,411,385.08
Due to other Federal Banks (net)	4,489,967.49
All other liabilities	1,526,980.80
Total liabilities	$159,252,133.37
Federal Reserve notes outstanding	$ 47,520,000.00
Against which there is deposited with Federal Reserve Agent—	
Commercial paper	$ 200,000.00
Gold and lawful money	47,320,000.00

Continental and Commercial National Bank of Chicago

REPORT OF CONDITION AT THE CLOSE OF BUSINESS:

Resources	June 4, 1913[1]	May 1, 1915[2]
Loans and discounts	$123,581,233.89	$137,202,412.85
Overdrafts	3,689.58	6,067.80
U.S. bonds to secure circulation	8,640,000.00	8,640,000.00
U.S. bonds to secure deposits	250,000.00	280,000.00
Other stocks, bonds, and mortgages	15,719,128.41	7,421,590.47
Real estate, furniture, and fixtures	13,847.00	13,847.00
Bank promises (equity)	———	6,000,000.00
Premiums paid	63,062.50	———
Due from other national banks	18,138,682.35	34,607,496.98
Due from state banks and bankers	5,862,007.47	9,208,867.63
Exchanges for clearing-house	5,709,024.08	10,983,056.19
Bills of other banks	450,560.00	1,845,995.00
Cash items, nickels, etc	140,970.87	346,202.10
Specie	20,298,507.10	18,204,295.25
Legal tender notes	15,357,940.00	6,260,950.00
Redemption fund	432,000.00	432,000.00
Due from U.S. treasurer	640,000.00	1,259,000.00
Customers' liabilities on letters of credit	———	1,005,911.01
Balance at Federal Reserve Bank	———	10,542,260.49
Total	$215,300,653.25	$254,259,952.77

[1] From the *Hand Book of the Banks* issued by the *Chicago Evening Post*, June, 1913.

[2] *Ibid.*, May, 1915.

Liabilities

Capital stock paid in	$ 21,500,000.00	$ 21,500,000.00
Surplus fund	8,500,000.00	8,500,000.00
Undivided profits	1,594,958.31	3,188,228.60
National bank notes outstanding	8,550,100.00	*8,639,997.50
Individual deposits subject to check	74,087,245.87	95,650,462.57
Demand certificates of deposit	1,165,603.22	1,343,511.47
Time certificates of deposit	———	325,384.90
Certified checks	783,010.48	1,780,319.08
Cashier's checks outstanding	776,776.21	2,243,253.44
Due to other national banks	60,259,316.25	68,390,835.34
Due to state banks and bankers	37,248,655.29	40,419,719.68
Dividends unpaid	1,134.00	6,024.00
United States deposits	408,853.62	467,014.76
Reserve for taxes	425,000.00	329,428.90
Liability on letters of credit	———	1,028,130.00
Foreign bills rediscounted	———	447,642.53
Total	$215,300,653.25	$254,259,952.77

* [The smallest permissible denomination for national bank notes is $5. The odd amount of total notes outstanding results from the redemption of half of a torn note.—EDITORS.]

[Between the dates of these two statements of the Bank the Federal Reserve Act (see selection 159) went into effect. Some of the changes which appear in the statement for May 1, 1915, reflect the influence of this new legislation. It should be noticed, however, that other disturbing influences were at work, including the European war and industrial depression in the United States. Also, the Bank during this interval moved to quarters in its new building.—EDITORS.]

OLD COLONY TRUST COMPANY, BOSTON[1]

STATEMENT OF CONDITION OCTOBER 21, 1913

BANKING DEPARTMENT

Assets	
Other stocks and bonds	$11,776,057
Loans on real estate	302,611
Demand loans with collateral	13,014,548
Other demand loans	3,891,848
Time loans with collateral	12,737,244
Other time loans	23,340,508
Overdrafts	2,789
Syndicate participations	630,251
Banking houses	2,200,000
Safe deposit vaults	258,474
Due from reserve banks	11,617,153
Due from other banks	3,226,066
Cash—	
Currency and specie	8,139,323
Other cash items	13,079
	$91,149,951

Liabilities	
Capital stock	$ 6,000,000
Surplus fund	8,000,000
Undivided earnings, less expenses, interest and taxes paid	1,336,640
Deposits—	
Demand—	
Subject to check	63,785,238
For payment of coupons, etc.	1,500,303
Certificates of deposit	1,316,824
Certified checks	88,278
Treasurer's checks	90,742
Time—	
Certificates of deposit not payable within thirty days	492,179
Open accounts not payable within thirty days	2,011,174
Due to reserve banks	33,531
Due to other banks	6,049,973
Dividends unpaid	40
Reserved for taxes	47,985
Reserved for interest	396,594
	$91,149,951

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[1] *Report of the* [Massachusetts] *Bank Commissioner* for 1913, Part I, pp. 475–76.

[The statement of the Savings Department of this Company is here omitted.—EDITORS.]

TRUST DEPARTMENT

Assets		*Liabilities*	
United States bonds	$ 2,165.50	On trust accounts	$ 9,077,703.79
State bonds	38,981.94	Income	75,167.8[illegible]
City, county, and town bonds	241,573.87	As executors, administrators, etc.	2,055,259.02
Railroad bonds	1,001,471.87	Income	62,643.98
Street railway bonds	227,838.75		
Miscellaneous bonds	614,123.72		
Bank stocks	124,186.63		
Railroad stocks	2,746,646.42		
Manufacturing stocks	318,415.51		
Miscellaneous stocks	3,617,973.29		
Loans on real estate	1,278,049.40		
Loans with collaterals or sureties	63,616.20		
Notes of individuals	6,616.09		
Notes of corporations	20,000.00		
Real estate owned	570,848.87		
Other assets	75,912.42		
Annuity policies	29,528.93		
Deposits in savings banks	42,987.16		
Deposits in national banks or trust companies	249,838.06		
	$11,270,774.63		$11,270,774.63

THE DOLLAR SAVINGS BANK OF PITTSBURGH

STATEMENT OF CONDITION AT CLOSE OF BUSINESS NOVEMBER 6, 1911[1]

Resources

Reserve fund:		
Cash, specie, and notes	$ 150,152.90	
Due from approved reserve agents	1,853,134.10	
Legal securities at par	600,000.00	
		$ 2,603,287.00
Nickels and cents		26.69
Checks and cash items		1,212.17
Loans on call with collateral		1,750,030.00
Loans secured by bonds and mortgages		129,400.00
Bonds, stocks, etc		15,153,836.25
Mortgages and judgments of record		9,357,839.61
Office building and lot		300,000.00
Other real estate		145,202.63
Miscellaneous assets		17,200.00
		$29,458,034.35

Liabilities

Surplus fund	$ 1,044,885.57
Undivided profits, less expenses and taxes paid	554,846.20
Individual deposits, time	27,858,243.18
Miscellaneous liabilities	59.40
	$29,458,034.35

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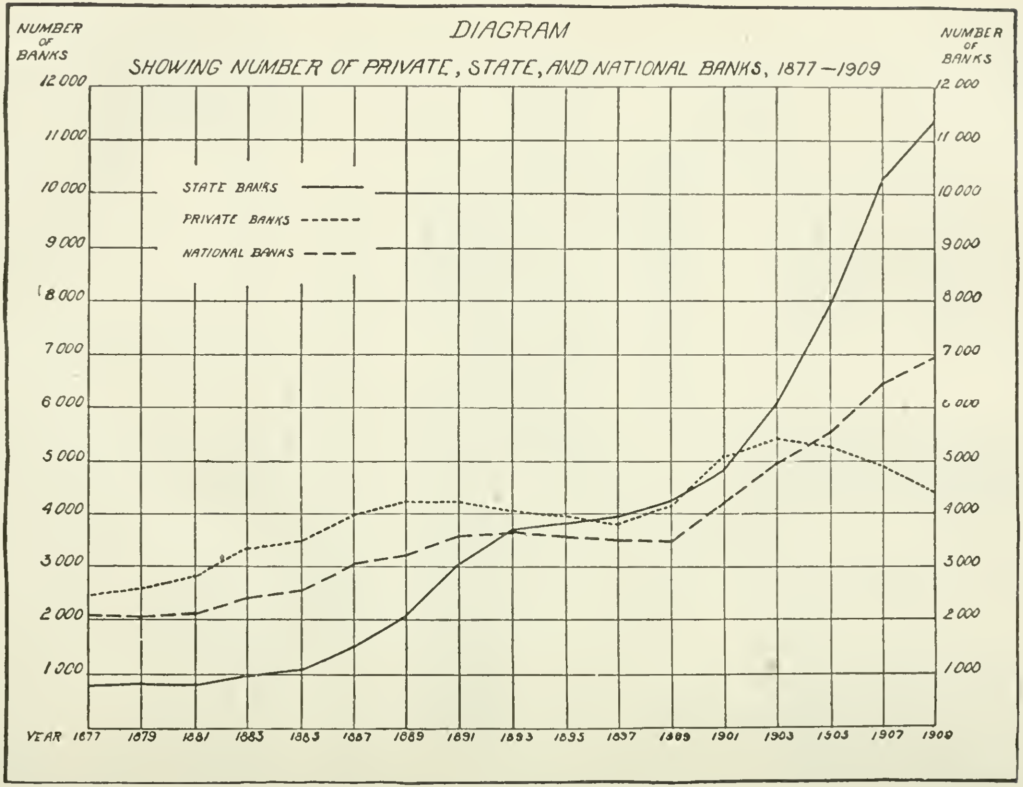
[1] *Report of the* [Pennsylvania] *Commissioner of Banking* for 1911, Part I, p. 270.

154. NUMBER OF PRIVATE, STATE, AND NATIONAL BANKS, 1877-1909[1]



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[1] From G. E. Barnett, *State Banks and Trust Companies Since the Passage of the National Banking Act*, p. 202. National Monetary Commission, 1911.

155. STATEMENTS OF THE BANK OF ENGLAND, THE BANK OF FRANCE, AND THE REICHSBANK

BANK OF ENGLAND

ACCOUNTS FOR THE WEEK ENDED JULY 2, 1913[1]

Issue Department

Notes issued	£53,901,665	Government debt	£11,015,100
		Other securities	7,434,900
		Gold coin and bullion	35,451,665
	£53,901,665		£53,901,665

Banking Department

Proprietors' capital	£14,553,000	Government securities	£12,756,505
Rest	3,345,465	Other securities	40,661,622
Public deposits*	14,737,272	Notes	24,271,745
Other deposits	46,633,003	Gold and silver coin	1,595,921
Seven-day and other bills	17,053		
	£79,285,793		£79,285,793

*Including Exchequer, Savings Bank, Commissioners of National Debt, and Dividend Accounts.

BANK OF FRANCE

RETURNS FOR JULY 3, 1913[1]

Debtor

Capital of the bank	Fr.	182,500,000.00
Profits in addition to capital		8,006,145.84
Reserve		22,105,750.14
Reserve of landed property		4,000,000.00
Special reserve		8,407,444.16
Notes in circulation		5,663,027,165.00
Interest on securities		62,779,698.87
Bank notes to order		4,330,652.80
Treasury account		229,395,514.55
Current accounts, Paris		591,285,833.77
" " branch banks		108,926,472.00
Dividends payable		12,994,551.11
Discounts and sundries		3,352,415.21
Rediscounts		5,532,896.00
Sundries		380,086,275.76
	Fr.	7,286,730,815.22

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[1] Figures from *The Economist* (London), July 5, 1913.

Creditor

Cash in hand	Fr. 3,945,569,423.82
Commercial bills overdue	64,100.23
Discounts in Paris	614,944,245.05
Foreign bills	21,831,290.95
Treasury bills	134,579.23
Discounts in branches	1,220,876,898.00
Advances on bullion at Paris	15,394,000.00
" " " " branch banks	....
Advances on Securities at Paris	209,851,250.61
" " " " branch banks	538,637,070.00
Advance to the State	200,000,000.00
Temporary advances (floods)	6,398,500.00
1) Government stock (reserve fund)	12,980,750.14
2) " " (disposable fund)	99,586,202.25
Rentes immobilisées (Government stock)	100,000,000.00
Premises and furniture	42,101,019.22
Expenses of management	1,734,393.44
Employ special reserve	8,304,499.16
Sundries	248,322,593.12
	Fr. 7,286,730,815.22

THE REICHSBANK

BALANCE SHEET OF DECEMBER 30, 1912[1]

(All items are stated approximately to the nearest thousand marks)

Assets

1. Gold in bars and foreign coin		M. 337,334,000
2. Specie:		
Cash	M. 699,701,000	
Notes of the Imperial Treasury	15,723,000	
Reichsbank notes	3,313,649,000	
Notes of other banks	12,767,000	
		4,041,840,000
3. Bills		2,036,916,000
4. Loans		176,704,000
5. Securities		108,310,000
6. Due to the bank on current account with its correspondents		67,511,000
7. Amount of overdue and unpaid bills		9,121,000
8. Value of real property belonging to the bank		67,023,000
9. Sundry Assets		37,924,000
		M.6,882,683,000

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[1] Adapted from *The Banker's Magazine* (London), XCVI, 242–43 (August, 1913).

Liabilities

1. Capital			M. 180,000,000
2. Reserve fund			70,048,000
3. Reserve fund for doubtful debts			5,993,000
4. Total amount of notes created			5,833,147,000
6. Deposits not bearing interest			393,000
5. Amount due on clearing and current accounts			746,464,000
7. Duty on note issue due to the Imperial Treasury			4,628,000
8. Sundry liabilities			14,013,000
9. Net profit for 1912		M.37,407,000	
Less:			
a) Preliminary dividend to shareholders.	M.6,300,000		
b) Paid to reserve fund	3,111,000		
		9,411,000	
		27,996,000	
Unappropriated profits of 1911		1,000	
			27,997,000
			M.6,882,683,000

156. THE ELASTICITY OF CURRENCY[1]

By the term "elasticity" as applied to a currency is meant the capacity to expand and contract with an increase or decrease in the demand for it—that is the adaptation of currency supply to currency need. Indeed, elasticity consists quite as much, if not more, in the capacity to contract as to expand.

Entirely apart and distinct from the occasional emergency demands for currency growing out of extraordinary or panic conditions, which it is not intended to discuss at this point, there are numerous variations in the demands for currency at different times in the year, arising from methods of doing business, and especially from the ebb and flow of industrial activity at different seasons. Where wages are paid weekly, for example, it is evident that there will naturally be a greater demand for currency, or a medium of exchange, on Saturday night and early in the week, than there would be a few days later when the amounts received in wages at the close of the previous week had been largely spent and returned to the banks in the stream of deposits from local tradesmen. If wages were paid only at monthly intervals, the variations on this account would be even greater. The amounts then required to make payments on the last day of each month, or the amount which the workmen of that community might hold on the evening of that day, would be much more than the amount of currency which would be in the hands of these same workmen four weeks later. In other words, there would be in such a community material monthly fluctuations in the demand for media of exchange, due to the methods followed in making payments for labor.

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[1] Adapted from the *Report of the Monetary Commission of the Indianapolis Convention* (1898), pp. 309–31.

Similarly, the practice of paying rents, settling accounts, etc., at monthly or quarterly intervals, wherever it prevails, leads to a considerable increase in the demand for media of exchange at certain periods, and a falling off at other periods; while the practice of paying dividends on stocks, and interest on bonds or on mortgages at definite quarterly, or semi-annual, or annual intervals, which has become so marked in the development of these forms of investment, greatly intensifies the increased demand for some means of payment at such dates.

But, perhaps the most marked instance of this periodically increased demand grows out of the marketing of the crops. Manufactured goods are, in general, capable of being marketed continuously throughout the year, and it is the aim of manufacturers so to adjust their production that this end will be secured. In the case of agricultural products, however, the circumstances are otherwise. The greater part of our immense agricultural crops is marketed within a period of three or four months. From the necessity of placing such large amounts of these products on the market at fixed recurring periods, arises one of the most marked seasonal demands for an increased medium of exchange.

Some of our ordinary media of exchange possess the characteristic of elasticity—the capacity of expanding and contracting with these varying needs of business—to a much greater degree than others. The deposit-currency by means of which the largest part of our commercial transactions is effected is particularly elastic. It expands and contracts automatically with every change in demand. If additional currency is wanted in a strictly commercial community for any of these extraordinary demands—by a railroad, for example, to provide for the payment of interest on its bonds—it is secured from an existing deposit, or by means of a loan granted in the form of deposit-currency against which checks for the interest are drawn; and to the extent which those to whom the interest is paid likewise make use of the check and deposit system, the whole transaction is carried through without the least trouble or friction. This currency expands freely and automatically to meet any real need, and contracts as easily as it expanded when it is no longer desired.

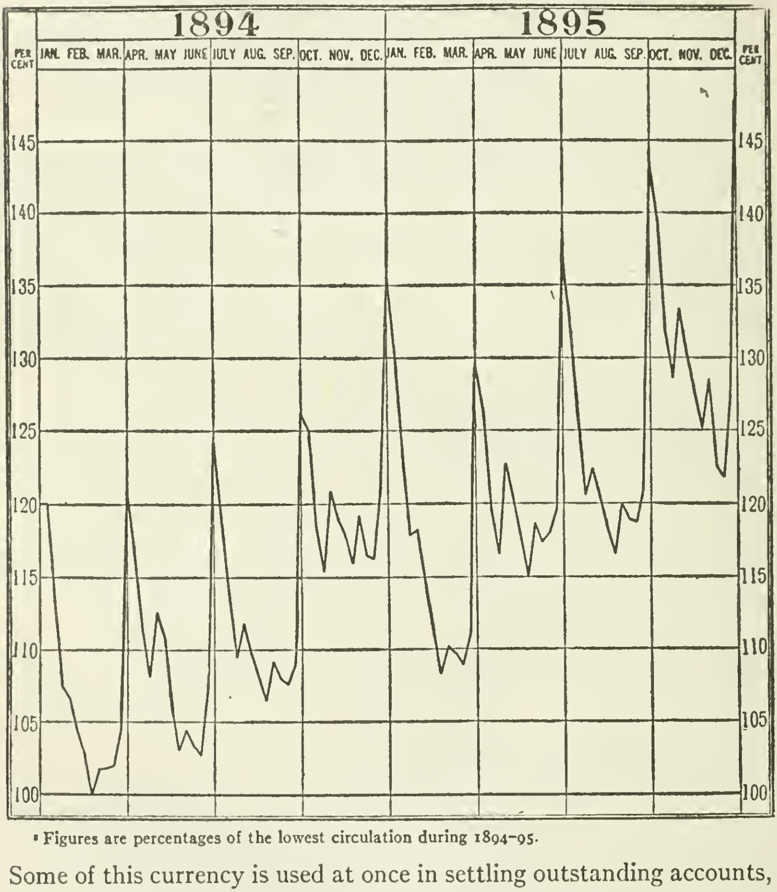
But manifestly not all these needs which have been suggested for increased supplies of a medium of exchange can be met by an expansion of the deposit-currency. Whether or not any particular demand can be so met, will depend largely upon the business habits of the community and the commercial development of the individuals or the character of the transactions.

In the payment of weekly wages, for example, the deposit-currency is very rarely used, even in the more highly developed commercial centers; either coin or some form of note-currency is required. But in this case the periods are so frequent that the demand may be said to be practically constant, as the necessity of providing for it is always present, and there is little opportunity for making any other use of the funds required for this purpose in the brief intervals when they are not actually in use.

The parties to monthly payments on account of wages, rents, and accounts, though still requiring a large use of the note-currency, do make a larger use of the deposit-currency than the classes just referred to. And when the quarterly and half-yearly settlements of accounts, rents, dividends, and interest are considered it is found that in all communities of high commercial development the deposit-currency is the form most used. And, as already suggested, so far as this particular medium of exchange is used, there is no ground for complaint on the score of inelasticity. The increased demands for currency arising from these transactions are in fact met by so automatic an adjustment of the supply that little visible evidence is left that there has been any fluctuation in the demand.

The most marked variations in demand for currency in this country occur in connection with the annual marketing of the crops. Owing to the fact that the agricultural classes involved in these transactions do not use the check and deposit system to any great extent, this demand is largely for a note-currency. The farmer on selling his crops may indeed receive a check in payment; but as he and a large part of the community with which he deals do not find the check and deposit system convenient, he is not satisfied with that sort of payment. He cashes the check at the bank, or through some merchant, and thus secures the form of currency which he requires. If he cashes it with a merchant, a portion may be merely offset against his account at the "store" where he deals, and to that extent the demand may be satisfied without resort to note-currency. But not so with the balance; for that he must have coin or notes.

NOTE ISSUES OF THE IMPERIAL BANK OF GERMANY[1]



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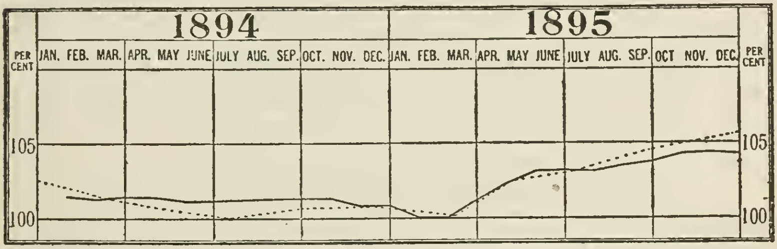
[1] Figures are percentages of the lowest circulation during 1894–95.

Some of this currency is used at once in settling outstanding accounts, and thus gets back to the bank almost immediately through the deposits of the tradesmen. To this extent the demand is of short duration. The rest of the currency is paid out from time to time during the fall and winter for "help," and in the purchase of the winter's supplies, or is held in cash in many cases to meet spring payments on a mortgage. The net result is that the average farmer has in his possession for the three or four months after he has sold his crop, a much larger sum of money or notes than during the three or four months immediately preceding. Taken in the aggregate, this makes a largely increased demand for currency in the form of notes in the fall season of the year.

In Germany, the absence of the development of the check and deposit system has left the burden of increased demand to fall almost exclusively on the note-currency. The result is a much more marked fluctuation in the supply of that particular medium of exchange than was exhibited in England, Ireland, or Scotland, where the extreme elasticity of the deposit-currency permitted the heaviest demands to be met without the use of notes. It will be noticed that in addition to the movements in January, April, July, and October, resulting from the settlement of dividends, interest and other quarterly payments, there are well defined monthly movements arising from the requirement of more currency in the settlement of accounts, rents, salaries, etc., at the end of each month.

Note Issues of the National Banks of the United States



The data given in the heavy line are the statements of outstanding circulation ordinarily quoted. They include, however, notes still held in the vaults and tills of the issuing bank; and, to the extent that this amount varies at different seasons of the year, this puts the circulation on a different basis from the others described and thus vitiates comparison. Fortunately we have the required data given on the same basis as in the other systems for the five dates in each year for which reports are made by the Comptroller of the Currency. This information is platted on the diagram in the broken line, and is such as to indicate that even if we had similar figures for weekly or monthly periods the elasticity shown would not be materially greater.

The currency problem in the United States is mainly an agricultural one, for the reason that the commercial centers are already supplied with a currency of the maximum elasticity—namely, deposits. In the distinctly agricultural sections, however, practically the same demands for currency exist as in Canada—the chief characteristic of which is an urgent need in the autumn, at the time the crops are being marketed. Owing, however, to the inelasticity of our bank-note currency, the demand does not find an automatic response in our circulation. That the demand exists, however, is evidenced in several ways—partly through its effects, and partly through the means which are taken to satisfy it.

There is, for instance, a well-defined annual movement of currency out of New York and the financial centers. This takes place regularly every year, commencing usually in July and August and continuing until well into December. The net movements of money between New York and the interior are reported each week in the financial journals. From these it appears that during January and February the country is usually emptying its idle money into New York; in March there is a slight reaction, lasting only a few weeks, and from May until August, the tide again flows strongly toward New York. With August the turn comes, and the movement to the interior is again strong and continuous until December.

This method of meeting an increased demand for currency in certain sections, mainly by withdrawing supplies from other districts, has its effects on the currency conditions of the places which are called upon to furnish the supplies of currency. It is so in the case of New York. With the commencement of the outward currency movement the surplus reserves of the New York City banks begin to decline. The usual period of currency shipments West and South is the period of diminishing reserves, and in December, as the current turns, the reserves again fill up. The rates of interest on call loans, it is well understood, vary inversely with the surplus bank reserves. When reserves are low the rate of interest is sure to be high, and when reserves are above normal, the call loans are again made at low rates of interest.

There is another way in which the efforts of the banks of this country to meet the enlarged autumnal demand in rural communities is manifested. This is through the operations of the banks in those sections. That the demand is for note-currency, is a fact well known to the bankers. In consequence, the affairs of each bank are as far as possible so shaped as to enable it to respond.

157. A SUMMARY VIEW OF THE WORK OF THE INDEPENDENT TREASURY[1]

I. HISTORICAL SUMMARY

1. The policy of the government has been changeable. In the first few years after the adoption of the Constitution, before the subject attracted serious public attention, there were no specific places for the custody of the public money, and it was left largely in the hands of collecting and disbursing officers.

2. During the existence of the first and second United States Banks, that is, from 1796 to 1811, and from 1816 to 1833, the date of the "removal of the deposits," the public money was kept mainly in these institutions and their branches. Nevertheless, even during these periods some state banks were employed.

3. In the interim between the closing of the first United States Bank and the opening of the second, the public money was kept mainly in the state-chartered banks. These banks were also used after the government ceased to employ the second United States Bank in 1833, and also after the expiration of the charter of that bank until the establishment of the independent treasury in 1846.

4. Beginning with 1847, immediately after the establishment of the independent treasury, the public money was kept in the Treasury and subtreasuries, and no banks were used until after the establishment of the present national banking system, in 1863. Since that time the depositary banks have supplemented the use of the subtreasuries as places for the keeping of the public money.

5. In the past one hundred and twenty years, therefore, there are only seventeen, 1847–1864, in which the government did not use depositary banks for keeping the public money.

6. The evidence therefore shows that there has been, uniformly, a strong tendency for the government, throughout its history, to use banks.

7. The causes of this tendency are shown to have been the greater convenience in the management of the public money, the desire of the Secretary and the public that government fiscal operations should interfere as little as possible with the monetary circulation and with business conditions, the necessities of the government, and pressure from banking and other interests.

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[1] Adapted from David Kinley, *The Independent Treasury of the United States and Its Relations to the Banks of the Country*, pp. 323–30. National Monetary Commission, 1910.

8. Under the influence and pressure described, first the Secretary of the Treasury, and later Congress, have given way, and virtually abandoned the policy of independence in the keeping and management of public money which was established by the act of August, 1846. Congress authorized the use of national banks in which to deposit receipts from internal revenue. With some vacillations, the extent of the use of the banks as depositaries for these receipts has steadily increased. By recent legislation receipts from customs may also be deposited in the banks. Under the first interpretation of the law permitting these deposits, they could accrue only as the collecting officers placed the money received by them in the banks and not from the transfer of government receipts once deposited in the treasuries. By later practice the latter method of deposit has also been adopted and is claimed by some to be legal. Under present practice and legislation, therefore, the Secretary of the Treasury has a free hand to put any and all receipts of public money in the depositary banks. The independence of the Treasury depends entirely upon the will of the Secretary.

9. A further departure from the policy of independence is shown by the course of opinion and legislation concerning security for deposits. Under the law as passed, public deposits were to be secured by United States bonds and otherwise. This was understood to mean United States bonds in addition to a personal bond. Eight years ago the phrase was differently interpreted, and banks were permitted to secure deposits on the basis of other than United States bonds as security. The practice thus established was legalized between two and three years ago.

10. At first the banks which obtained public money on deposit were expected to keep a reserve against it, as provided by the law of their being. Some seven or eight years ago this practice was broken and the banks allowed to hold public deposits without protecting them by a reserve. The practice thus initiated was also later made legal.

11. Finally, with all these changes, the amount of public money deposited with the banks has steadily increased, until at one time in recent years, only a comparatively small working balance was kept in hand by the Treasury itself.

II. OPERATION AND INFLUENCE

1. The independent treasury system disturbs the money market in ordinary times by its irregular intake and output of money. If

the intake happens to occur on a rising speculative market it may do some good by restricting speculation. It if happens to occur when business operations call for an easier market, the influence is likely to be harmful. Corresponding results flow from the relative times of the occurrence of the output. These influences are intensified when government receipts exceed expenditures for considerable periods.

2. In times of crises, or panic, the independent treasury may aid the money market (*a*) by depositing a surplus revenue in the banks and thus restoring the money to circulation; (*b*) by prepaying interest on the public debt, by "timing" interest, pension, and other payments; and (*c*) by buying bonds.

The first method is open to the objection that pressure from the banks for a general distribution may prevent the deposits from being made in sufficient measure where they are most needed. Then, too, the charge of favoritism in the selection of banks has been made. Further, if such deposits are to be made there is no good reason for requiring security, or for excusing the banks from maintaining a reserve against such deposits. Moreover, the Secretary of the Treasury should be allowed to check against these deposits instead of being compelled to use the present compressed method of withdrawal.

The prepayment of interest and the "timing" of other payments are too trivial to be worthy of a great government.

Attempts made to relieve the money market by buying bonds are open to the objection that there is a loss involved in prepaying the debt.

All the modes of relieving the money market are open to the three general objections that the process puts too great power in the hands of the Secretary; that, however well he discharges his responsibility, he is likely to make mistakes which will make the situation worse; and that any such interference must be, from its nature, arbitrary.

3. Objections may be made against the independent treasury in the fiscal operations of the government in time of war. Although by means of the system the Treasury succeeded in placing its loans during the Mexican War, it failed to do so in the Civil War. It also failed during the time following 1890, although this was not a period of war. It succeeded, in a way, in placing the Spanish War loan directly, but ventured to make the experiment only after securing the assurance of the banks that they would sustain it. In all important loan negotiations in the past fifty years the Treasury has been obliged, in one way or another, to rely upon the banks for aid.

4. The main advantage claimed for the direct placing of loans by the independent treasury is that the loans are more widely distributed or more popular. Experience shows that this is not the case. Even though the loan be widely distributed at first, the securities soon become concentrated in the hands of a few holders, principally the banks. There is reason to think, too, that in time of war a loan can be placed at less expense through banks and banking syndicates.

5. The money may be regarded as safe. Experience shows, however, that defalcations and thefts may occur under the system.

6. The system has had the support of popular opinion. This support arises from the fact that the system worked well for some time after it was established, thus forming a striking contrast with the evil operation of the state bank depositaries. Moreover, there is a popular distrust of banks, especially large ones.

III. PROPOSALS FOR THE REPLACEMENT OF THE SYSTEM

1. Enlarge the present national bank depositary system by putting the receipts of the government immediately into the banks when collected, without a deposit of bonds as security, the banks to pay a reasonable rate of interest to the government on its balances, and the government officers to check against deposit accounts.

2. Modify the first proposal by dividing the country into clearing-house or bank depositary districts. Establish a clearing-house for each district, and enlarge the functions of the clearing-house so as to make it the agent for all the banks of the district, with which the government officers may deal directly. Under this system all government moneys will be deposited with the clearing-house or district bank, which will be responsible to the government, and it may redeposit with the banks of its district under arrangements to be provided.

3. Establish a central bank independent of the government and of existing banks, which shall be the depositary and fiscal agent of the government.

4. Establish a federated bank to include all national banks. This, of course, is a form of central bank. Instead of being independent of the existing banks, it would be a federation of them.

5. Make the Treasury itself a government bank by enlarging its present banking functions and giving the Secretary a staff of expert business and banking advisers.

[NOTE.—See Selection 159 for the modifications actually made by the act of December 23, 1913.—EDITORS.]

158. BANKERS' VIEWS OF OUR BANKING AND CURRENCY NEEDS[1]

The following are some of the answers prepared by the Currency Commission of the American Bankers' Association to questions formulated by a subcommittee of the Banking and Currency Committee of the United States Senate.

1. What are the essential defects of our banking and currency system?

Answer. *a*) A principal defect of our system is the absolute rigidity of our currency. A bank in order to take out circulation must invest more money in government bonds than it is permitted to issue in currency, thereby impairing, rather than increasing, its power to aid commerce and trade.

Outside of the three central reserve cities there is no redemption of national bank notes, except when and as they wear out and become unfit to circulate. This condition is inherent in the system and is certainly unsound.

b) The system lacks cohesiveness, there being no provision for co-operation among the banks in it. Under ordinary conditions this is not so much felt by the banks individually, but under strained financial conditions, when each bank is thrown on its own resources and must in self-protection act independently of all the rest, the lack of a system under which all could co-operate through a common policy of action becomes keenly felt and it becomes evident that what is really lacking is a system.

c) The requirement that the banks must individually control their own portion of the legal reserve money of the country, without being provided with proper means for the protection or replenishment of their legal reserves, is unscientific and economically wasteful.

d) An unsound system of reserves under which in periods of anxiety it becomes necessary in the protection and maintenance of individual reserves for each bank in the national system to contend against every other bank; the dissipation and scattering of the great bulk of the reserve money of the country into a large number of small hoardings, completely destroying in times of stringency the strength and power which might be gained by unification and massing of reserves for the mutual support of the banks and the common good of the public.

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[1] Adapted from a pamphlet issued by the Currency Commission of the American Bankers' Association, 1913. The numbering of the questions has here been changed.

e) The use of so much of the legal reserve money of the country in actual circulation for ordinary business purposes is another economical waste. No provision is made for the use of any substitute for legal reserve money as a circulating medium other than the national bank notes secured by government bonds, which are as inflexible in their volume and therefore as irresponsive to the fluctuating commercial needs for them as the legal reserve money itself. The gold certificates now in circulation, amounting to $1,085,489,000, being merely warehouse receipts for an equal amount of gold in the government treasury, form the most conspicuous example of this economic waste.

f) The lack of elasticity in the circulation, all forms of our present circulating medium being rigidly fixed in amount. The necessities of commerce for a circulating medium are arbitrarily met with a fixed amount of it, which does not respond in its volume to the fluctuating demands. Assuming that the aggregate amount may be just sufficient for an average volume of general business, then there must be a surplus when the volume of business falls below the average and a deficiency when the volume of business rises above the average. The actual condition, however, is that in each year there are seasons in which the needs for circulation are much heavier than they are in other seasons, so that its inadaptability in volume to the legitimate existing demand is constantly felt. We have as a rule either a surplus or a deficiency.

g) The restriction of the use by the banks of their legal reserves and the prohibition of their lending power in the presence of unusual demands upon them, without means of protecting their reserves by the use of any satisfactory substitute therefor, or of replenishing them through adequate rediscounting facilities, which would enable them to convert their available assets into cash or legal reserve.

h) The lack of provision for the organization of American banking institutions in foreign countries, which are necessary for the development of our foreign trade.

i) The independent treasury system, under which the government acts as partial custodian of its own funds, resulting in irregular withdrawals of money from the bank reserves and from circulation and materially interfering with the even tenor of general business.

j) No open market for commercial paper; banks of sufficient capital should be allowed to accept drafts, for a commission, with a view to the sale of the acceptances in the open market, thereby establishing a current market for commercial paper and thus enabling banks to buy, whenever they have an overplus of funds, or sell in this market, whenever they wish to strengthen their position or meet demands against them, or accumulate funds for the use of their regular clientèle.

2. Enumerate concisely its advantages and disadvantages.

Answer: *a*) One advantage of our banking system is that it enables each community to organize and control its own banking facilities.

b) It has for half a century provided the government with a market for its bonds. This was a great advantage to the government at the time the banking system was inaugurated and it has since been taken advantage of by the government to reduce by two-thirds the rate of interest on its bonds. On some issues of its 2 per cent bonds it has obtained a premium, notwithstanding the fact that without this artificial market their investment value would be about 30 per cent below par.

c) Another advantage of no small importance in view of the conditions of the bank note circulation of the state banks at the time the bank act was enacted is that it has provided a bank note circulation of uniform value, which in spite of its defects is of undoubted strength and stability.

Its disadvantages are covered in the list of its defects. It might, however, be stated as an offset to the advantages referred to, (*b*) and (*c*), that the artificial market maintained for government bonds has been so maintained at the expense of the banking development and commercial growth of the country, both of which have been seriously retarded by the costly periodical panics for which the defects of the banking and currency system are principally responsible.

3. Should national banks continue to have a bond-secured currency?

Answer: No. In the use of government bonds as security for circulation, the volume of currency, instead of fluctuating with the varying requirements of trade, is limited by the volume of bonds and fluctuates according to their market prices. These prices are determined, not by the general investment value of the bonds, but by the profit possible to banks in using them as security for circulating notes, resulting in artificial stimulation of government bond prices. One unfortunate consequence of this artificial condition is that the nation's bonds, which should be widely held by its citizens as their choicest investment, are held almost exclusively by banks to secure circulation or government deposits.

4. Should an elastic currency be authorized by law? If so, should it be limited, and to what amount?

Answer: Regarding an elastic currency as a vital necessity in connection with the banking and currency system of this country, we believe that such a currency should be authorized by law. The amount of it should be controlled by the gold reserve requirements against it. Such gold reserve should be ample, not less than 50 per cent as a recognized minimum. A special tax might be levied upon any deficiency of the reserve below the stipulated amount of it, this tax to be increased as the deficiency increases. Such provision would in our opinion prevent over expansion of the currency.

5. Should such currency be the notes of the individual banks, or of a central reserve association, or of a number of regional reserve associations, or of the United States Treasury?

Answer: Preferably by a central reserve association. Good results may be accomplished by a number of regional reserve associations, if the control of their resources were properly placed under central joint control of the government and the banks. Doubtless a safe currency could be issued by the United States Treasury, if the law providing the same were properly drawn, but it would seem difficult if not impossible to provide for its proper expansion and contraction in accordance with the demands of trade. The experience of the world is that it is better for a government to provide for such currency indirectly, through some privately owned corporation under strict governmental supervision, rather than put the credit of the government at issue with every note placed in circulation. Troublesome times come to every community and every nation, and it is better then to have the credit of the bank called in question, than the credit of the government itself.

6. If a tax on this currency payable to the government is provided, should it be graduated so as to increase with the volume of currency issued by the reserve association, or graduated so as to increase with the length of time it is outstanding?

Answer: A tax upon the deficiency in reserve graduated on a scale increasing as the deficiency increases removes all necessity or reason to tax notes either in proportion to volume or to length of time outstanding. The tax might be regulated so as to become prohibitive before the reserve could fall to what might be regarded as the danger point.

159. THE FEDERAL RESERVE ACT OF DECEMBER 23, 1913

I. THE ORGANIZATION SCHEME

The Federal Reserve Board.—The Secretary of the Treasury, the Comptroller of the Currency, and five other members appointed by the President to serve ten years at a salary of $12,000 per annum.

The Federal Advisory Council.—Twelve members on one year appointment.

The Federal Reserve Banks.—Twelve, one in each of twelve districts. Each is governed by a board of nine directors on a three-year appointment.

The Member Banks.—National banks and other eligible banks which subscribe to the stock of the federal reserve bank in their district.

II. THE FEDERAL RESERVE BOARD

The powers and duties of the Federal Reserve Board:

"*a*) To examine at its discretion the accounts, books, and affairs of each federal reserve bank and of each member bank and to require such statements and reports as it may deem necessary. . . . .

"*b*) To permit, or, on the affirmative vote of at least five members of the Reserve Board to require federal reserve banks to rediscount the discounted paper of other federal reserve banks at rates of interest to be fixed by the Federal Reserve Board.

"*c*) To suspend for a certain limited period any reserve requirements specified in this act: Provided, That it shall establish a graduated tax upon the amounts by which the reserve requirements of the act may be permitted to fall below the level hereinafter specified: And provided further, That when the gold reserve held against federal reserve notes falls below forty per centum, the Federal Reserve Board shall establish a graduated tax of not more than one per centum per annum upon such deficiency until the reserves fall to thirty-two and one-half per centum, and when said reserve falls below thirty-two and one-half per centum, a tax at the rate increasingly of not less than one and one-half per centum per annum upon each two and one-half per centum or fraction thereof that such reserve falls below thirty-two and one-half per centum.

"*d*) To supervise and regulate through the bureau under the charge of the Comptroller of the Currency the issue and retirement of federal reserve notes.

"*e*) To exercise general supervision over said federal reserve banks.

"*f*) To grant by special permit to national banks applying therefor, when not in contravention of state or local law, the right to act as trustee, executor, administrator, or registrar of stocks and bonds under such rules and regulations as the said board may prescribe."

III. The Federal Advisory Council

The board of directors of each federal reserve bank selects one member and arranges for his compensation. The council must meet at least four times per year. As indicated by its name, its functions are purely advisory.

IV. The Board of Directors of Each Federal Reserve Bank

1. Nine members, of three classes, holding office for three years. Class A is representative of the stockholding banks; class B is representative of commerce, agriculture, or other industry of the district; class C represents the Federal Reserve Board. Only members of class A may be *active* bankers. No senator or representative may be on the board.

2. Members of class C are appointed by the Federal Reserve Board. One of them shall be chairman of the board and *Federal Reserve Agent*. Another member of class C shall be his deputy. Both of these men must be persons of tested banking *experience*.

3. Members of classes A and B are to be elected by the constituent member banks of the district according to a somewhat complicated single-bank-single-vote, electoral-college scheme.

4. The reserve agent represents the government in the management of the reserve bank, acts as intermediary for the receipt of government deposits, accepts the paper offered by the bank as a basis for the issue of federal reserve notes, and generally reports on conditions to the Federal Reserve Board at Washington.

V. Federal Reserve Districts and Federal Reserve Banks

1. There are twelve such districts, and in each district a federal reserve city is the site of a federal reserve bank.

2. Every national bank *must* (or cease to be a national bank) and other eligible banks *may* subscribe to the stock of the federal reserve bank in their district, each bank subscribing to the amount of 6 per cent of its paid up capital and surplus. The minimum subscribed capital of a federal reserve bank is $4,000,000. The "other eligible banks" referred to above are incorporated state banks which meet certain conditions. In important particulars these conditions are similar to the conditions laid down for national banks.

3. Each federal reserve bank is to establish branches in its district.

4. Each federal reserve bank is to be chartered for 20 years.

5. Dividends are limited to a 6 per cent cumulative dividend. All other net earnings go to the United States except that one-half of such other net earnings are to go to a surplus fund until that fund equals 40 per cent of the capital.

VI. POWERS OF FEDERAL RESERVE BANKS

1. Note issue powers (discussed in detail elsewhere).

2. Power to act as fiscal agents of the United States.

3. Power for each bank to receive deposits from any of its member banks, or, solely for exchange purposes, from other federal reserve banks.

4. Rediscount power as follows: "Upon the indorsement of any of its member banks, any federal reserve bank may discount [to a certain amount] notes, drafts, and bills of exchange arising out of actual commercial transactions; but such definition shall not include notes, drafts, or bills covering merely investments or issued or drawn for the purpose of carrying or trading in stocks, bonds, or other investment securities, except bonds and notes of the government of the United States. Notes, drafts, and bills admitted to discount under the terms of this paragraph must have a maturity at the time of discount of not more than ninety days: Provided, That notes, drafts, and bills drawn or issued for agricultural purposes or based on live stock and having a maturity not exceeding six months may be discounted in an amount to be limited to a percentage of the capital of the federal reserve bank, to be ascertained and fixed by the Federal Reserve Board. . . . ."

Any federal reserve bank may discount to a certain amount acceptances which are based on the importation or exportation of goods and which have a maturity at the time of discount of not more than three months, and are indorsed by at least one member bank.

5. Power to engage in open-market operations in the purchase and sale of "cable transfers and bankers' acceptances and bills of exchange of the kinds and maturities by this Act made eligible for rediscount, with or without the indorsement of a member bank."

6. Power to deal in gold coin and bullion at home or abroad.

7. Power "to buy and sell, at home or abroad, bonds and notes of the United States, and bills, notes, revenue bonds, and warrants with a maturity from date of purchase not exceeding six months, issued in anticipation of the collection of taxes, or in anticipation of the receipt of assured revenues by any state, county, district, political subdivision, or municipality in the continental United States, including irrigation, drainage and reclamation districts."

8. Power "to establish from time to time, subject to review and determination of the Federal Reserve Board, rates of discount to be charged by the federal reserve bank for each class of paper, which shall be fixed with a view of accommodating commerce and business."

9. Power "to establish accounts with other federal reserve banks for exchange purposes and, with the consent of the Federal Reserve Board to open and maintain banking accounts in foreign countries, appoint correspondents, and establish agencies in such countries wheresoever it may deem best for the purpose of purchasing, selling, and collecting bills of exchange."

10. Authority to receive deposits from their member banks and from the government of the United States, but from no other source. They may lend to their member banks and to the government, but to no one else.

VII. Note Issues

1. Each federal reserve bank may issue notes in the same manner as may existing national banks except that such issue is not limited to the capital stock of the federal reserve bank.

2. Federal reserve notes of the denominations $5, $10, $20, $50, $100, may be issued at the discretion of the Federal Reserve Board solely for the purpose of making advances to federal re-

serve banks. These notes shall be "obligations of the United States and shall be receivable by all national and member banks and federal reserve banks and for all taxes, customs, and other public dues. They shall be redeemed in gold on demand at the Treasury Department of the United States, in the city of Washington, District of Columbia, or in gold or lawful money at any federal reserve bank." They constitute a first lien on assets. These notes are to be issued through the federal reserve agent and may be issued to the full amount of collateral offered by the federal reserve bank. The collateral shall be notes and bills accepted for rediscount. These federal reserve notes "shall bear upon their faces a distinctive letter and serial number. No federal reserve bank shall pay out notes issued through another under penalty of a tax of ten per centum upon the face value of notes so paid out."

3. "Every federal reserve bank shall maintain reserves in gold or lawful money of not less than thirty-five per centum against its deposits and reserves in gold of not less than forty per centum against its Federal reserve notes."

4. "The Federal Reserve Board shall require each federal reserve bank to maintain on deposit in the Treasury of the United States a sum in gold sufficient in the judgment of the Secretary of the Treasury for the redemption of the federal reserve notes issued to such bank, but in no event less than five per centum; but such deposit of gold shall be counted and included as part of the forty per centum reserve hereinbefore required."

5. The federal reserve board will be the judge of what amount, if any, of these federal reserve notes shall be issued to a given federal reserve bank, and shall fix the rate of interest such federal reserve bank must pay for these notes.

6. Arrangements are made for having federal reserve notes printed and deposited in conveniently placed sub-treasuries so that they may be delivered promptly.

7. Provisions are made for taking over the issue of present national banks wishing to surrender their issue.

NOTE.—The quantity of notes that can issue is thus limited (1) by the quantity of eligible commercial paper discounted at banks and then rediscounted at reserve banks; (2) by the disposition of banks to ask for notes; (3) by the disposition of the federal reserve banks to get such notes from the Federal Reserve Board through the federal reserve agent; (4) by the judgment of the Federal Reserve Board.

It may be expected that the national bank notes will remain in circulation somewhat as heretofore, or will retire from circulation very gradually.

VIII. Bank Reserves

1. "A bank not in a reserve or central reserve city shall hold and maintain reserves equal to twelve per centum of the aggregate amount of its demand deposits (i.e., deposits payable on less than 30 days' notice) and five per centum of its time deposits." Four-twelfths of the reserve must be in each bank's own vaults, five-twelfths in the vaults of the federal reserve bank. The other three-twelfths may be held in either place or in both.

2. "A bank in a reserve city shall hold and maintain reserves equal to fifteen per centum of the aggregate amount of its demand deposits and five per centum of its time deposits." Five-fifteenths of the reserve must be in each bank's own vaults, six-fifteenths in the vaults of the federal reserve bank. The other four-fifteenths may be held in either place or in both.

3. "A bank in a central reserve city shall hold and maintain a reserve equal to eighteen per centum of the aggregate amount of its demand deposits and five per centum of its time deposits, in its vaults six-eighteenths thereof, in the federal reserve bank seven-eighteenths, the balance of said reserve shall be held in its own vaults or in the federal reserve bank, at its option."

4. Any federal reserve bank may receive from the member banks, as reserves, not exceeding one-half of each instalment, certain eligible paper.

5. No member bank shall keep on deposit with any non-member bank a sum in excess of ten per centum of its own paid-up capital and surplus.

Note 1.—The former reserve requirements for national banks were: (*a*) For banks in central reserve cities 25 per cent, (*b*) for banks in reserve cities 25 per cent, of which one-half might be deposited in central reserve city national banks, (*c*) for country banks 15 per cent, of which three-fifths might be deposited in reserve city and central reserve city national banks.

Note 2.—Reserves will be much more highly centralized than at present, inasmuch as there can be at most only twelve reserve bank cities as against the fifty reserve and central reserve cities existing at present.

IX. Miscellaneous Provisions

1. The Federal Reserve Board may "at its discretion exercise the functions of a clearing-house for such federal reserve banks, or may designate a federal reserve bank to exercise such functions, and may also require each such bank to exercise the functions of a clearing-house for its member banks."

2. National Banking Associations are no longer required to deliver to the United States Treasurer a stated amount of United States bonds before commencing business.

3. Any national banking association not situated in a central reserve city may make loans secured by improved and unencumbered farm land, situated within its federal reserve district, but such loans are carefully restricted.

4. Any national banking association possessing a capital and surplus of $1,000,000 or more may file application with the Federal Reserve Board, upon such conditions and under such regulations as may be prescribed by the said board, for the purpose of securing authority to establish branches in foreign countries or dependencies of the United States for the furtherance of the foreign commerce of the United States and to act, if required to do so, as fiscal agents of the United States.

5. Provisions are made which will enable the existing national banks gradually to retire their outstanding note issue, if they so desire. The plan to be used involves the refunding to such 2 per cent bonds as are used for securing note issue into 3 per cent securities.

160. THE CASE AGAINST STATE GUARANTY OF BANK DEPOSITS[1]

Looked at in the abstract such legislation never had any real reason for existence. It was an unwise and unjust "remedy" for an imaginary evil. It was unwise because of its inevitable tendency to lessen responsibility in bank management, its weakening of the incentives for prudence whether in fixing interest rates, in granting accommodation, in declaring dividends, or in building up a surplus, or in any of the other matters that enter into the conduct of a bank. It was unjust because it taxed well-managed institutions for the consequences of bad judgment, imprudence, or dishonesty in the conduct of other institutions, for which they were in no way responsible, and which, however aware they might be of their existence, they had no means whatever to prevent. It was certainly unfair to stockholders in carefully managed banks to oblige them to protect persons who did not do business with them, but had preferred banks of less conservative policy. But above all the deposit guaranty legislation was uncalled for. The losses entailed upon depositors because of bank failures are not of sufficient proportions to demand so drastic a remedy. In the national banks during the more than half-century in which the federal system has existed, according to the comptroller of the currency, these losses have amounted on the average to only about 3–100 of 1 per cent of the aggregate deposits, and there is no evidence to show that the losses have been any greater in the state-chartered institutions, except in those states in which the deposit guaranty has been operating.

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[1] Adapted from A. Piatt Andrew, "The Essential and the Unessential in Currency Legislation," the Page Lecture delivered at Yale University, May 1, 1913.

It is not altogether clear just what was aimed at by the deposit guaranty agitators, but in all likelihood the objects sought, in so far as they were reasonable and legitimate, could have been more easily and adequately and less dangerously attained by other means. If what was desired was to utilize the service and security of the government in handling the savings of people who are distrustful of banks, and so to reduce the hoarding of actual cash, this object has been far more satisfactorily attained by the establishment of the postal savings system and the issue of postal savings bonds in small denominations. If, however, what was desired was to make it possible for a bank at its discretion to insure its depositors against loss in case of insolvency, which would seem to have been the object in the states where the "voluntary" system was adopted, this could have been accomplished, as the decisions of the Supreme Court have shown, without further legislation through the agency of private insurance firms. But if what was desired was to insure to depositors in thoroughly solvent banks the immediate availability of their deposits at all times, this end would be best accomplished, not by making the assets of such banks liable for the debts of insolvent institutions, but by adding to our present banking system such facilities as would insure to solvent banks the possibility of always translating their sound assets immediately and without limit into available funds. This is the fundamental desideratum of our currency system.

XII. INTERNATIONAL TRADE AND FOREIGN EXCHANGE

161. THE FOREIGN TRADE OF THE UNITED STATES, 1912-13[1]

The detailed figures given by the Department of Commerce show that the fiscal year ended June 30, 1913, was the banner year in the trade of the United States with foreign countries, the total trade exceeding $4,275,000,000 and surpassing the total trade of the fiscal year 1912 by over $421,000,000. Imports into the United States in the year exceeded $1,812,000,000 and exports from this country exceeded $2,465,000,000, making a balance of trade in our favor of over $652,900,000. The imports surpassed those of the fiscal year 1912 by over $159,700,000, and the exports were more than $261,500,000 greater than those of last year.

A survey shows that the greatest gain in our exports is in manufactures ready for consumption, in which class there was an increase of more than $105,000,000 over 1912. There was also a substantial gain of over $60,000,000 in manufactures for further use in manufacturing, but the increase in foodstuffs partly or wholly manufactured was only a little over $1,500,000.

Looking at the figures by grand divisions it will be seen that the aggregate trade of the United States with Europe in the fiscal year just ended was over $2,371,000,000, or more than one-half our total foreign trade. This was divided into over $892,000,000 worth of imports and $1,479,000,000 worth of exports, a balance of trade in our favor of more than $586,000,000. The aggregate trade with the other countries of North America exceeded $979,000,000, of which over $361,900,000 were imports and over $617,400,000 were exports The remainder of our foreign trade, amounting to about $925,000,000, was divided among Asia, South America, Oceania and Africa, in the order named.

The United Kingdom maintains its position as our best customer, having purchased from us over $597,000,000 and sold us over $295,000,000 in the year, an aggregate trade of more than $892,000,000. Our second best customer is Canada, which bought from us over $415,000,000 and sold us over $120,000,000, a total trade exceeding $535,000,000. Third comes Germany, which bought from us over $331,000,000 and sold us only a little less than $189,000,000, an aggregate trade of more than $520,000,000. France is fourth with purchases from us in excess of $146,000,000 and sales to us in excess of $136,000,000, a total trade of over $282,000,000.

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[1] From *The Journal of Commerce and Commercial Bulletin*, August 7, 1913.

Merchandise Imported from and Exported to Each of the Principal Countries During the Fiscal Year Ended June 30, 1913 (000 Omitted)

	Imports	Exports
Grand divisions—		
Europe	$892,866	$1,479,076
North America	361,943	617,411
South America	217,747	146,147
Asia	276,452	115,056
Oceania	37,543	79,102
Africa	26,425	29,088
Total	$1,812,978	$2,465,884
Principal countries—		
Argentina	$26,863	$52,894
Australia	10,956	43,351
Belgium	41,941	66,845
Brazil	120,155	42,638
Canada	120,571	415,260
China	39,010	21,326
Cuba	126,088	70,581
France	136,877	146,100
Germany	188,963	331,684
India, British	67,936	11,040
Italy	54,107	76,285
Japan	91,633	57,741
Mexico	77,543	54,571
Netherlands	38,180	125,909
Russia	29,315	26,465
United Kingdom	295,564	597,150

Imports and Exports of the United States, by Great Groups, During Fiscal Year Ended June 30, 1913 (000 Omitted)

	Imports	Exports
Groups—		
Foodstuffs in crude condition and food animals	$211,458	$181,693
Foodstuffs partly or wholly manufactured	194,680	320,401
Crude materials for use in manufacturing	633,224	730,963
Manufactures for further use in manufacturing	348,886	408,992
Manufactures ready for consumption	410,608	778,008
Miscellaneous	14,120	8,447
Foreign merchandise exported	....	37,377
Totals	$1,812,978	$2,465,884

162. THE TRADE BALANCE OF THE UNITED STATES[1]

The term "trade balance" is generally used for the purpose of indicating the excess value of a country's exports of merchandise over the value of its imports of merchandise or the excess value of a country's imports of merchandise over the value of its exports of merchandise. In the sixteenth, seventeenth, and eighteenth centuries a favorable trade balance was a matter of great concern to statesmen and to financiers. At that time it was supposed that any country which imported goods of greater value than the goods it exported would be seriously injured by having to make payment in the precious metals and that any country which persisted in purchasing goods of greater value than the goods it exported would be totally drained of its stock of the precious metals and would be ruined. Efforts to secure favorable trade balances led to the passage of many laws for restricting imports and for stimulating exports. As commerce developed and international banking advanced it was recognized that a nation could under certain circumstances purchase goods of a greater aggregate value than it exported, without sustaining any drain upon its stock of the precious metals or suffering any inconvenience whatsoever, and in recent time no one has paid any great amount of attention to the question of the trade balance other than for the purpose of ascertaining the factors which caused the imports of certain countries largely to exceed their exports or of discovering the reason for the exports of certain countries largely exceeding their imports.

I. CAPITAL INVESTMENTS AND TRADE BALANCES

When a country commences to invest capital in other lands its exports begin to exceed its imports. Capital investment by one country in other lands means that that country is willing to sell goods to other lands, and to take payment in securities of one class or another. Should the capital investments extend over only one year the exports of the lending country in the year in which the loan is made would exceed its imports to the extent of the sum invested. Should no additional investments be made, the imports of the lending country in the following years would exceed its exports to the extent of the interest or dividends it received upon the capital invested. As time goes on, and the total amount of capital invested by it in other lands attains to larger and larger figures, the annual sum received as interest upon the capital embarked rises correspondingly. In this case the balance of exports over imports resulting from the investment of capital becomes smaller and smaller in consequence of the increasing sums received per contra from the interest upon the capital previously invested. After a time the annual sums which a lending country receives for interest exceed the additional sums it lends in each year, and in spite of its continued investment of capital in other lands its imports exceed its exports.

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[1] Adapted from George Paish, *The Trade Balance of the United States*, pp. 153–97, National Monetary Commission, 1910.

In the same way the trade balances of countries which borrow capital from other lands are affected by the produce they import in respect of the capital they borrow and by the export of produce for the payment of interest. A country beginning to borrow from other lands imports a larger amount of produce than it exports. When the interest payments of a borrowing country amount to large figures, its exports appreciably exceed its imports even in years in which it borrows freely.

There is practically no country which neither exports nor imports capital, with the exception of Thibet. This type of country may be left out of consideration. The chief countries which supply capital to other lands are Great Britain, Germany, France, Holland, Belgium, and Switzerland. Of these countries, Great Britain is by far the most important lender. This country has about $15,000,000,000 of capital invested abroad and is adding to its colonial and foreign investments at the rate of upward of $500,000,000 a year. Germany and France come next with investments of about $8,000,000,000 each. The investments of Holland, Belgium, and Switzerland are of much smaller amount, but are nevertheless considerable. The imports of all these five countries largely exceed their exports in consequence of the receipt of interest.

The principal countries whose exports exceed their imports in consequence of the large amount of interest they have to pay on capital borrowed from other lands are the United States, the Australasian colonies of Great Britain, British India, Argentina, Brazil, and Mexico. Several other countries whose imports now exceed their exports will eventually come into this category. At the present time Canada's imports largely exceed her exports in consequence of the vast amount of capital—about $200,000,000 a year—which she is borrowing from other lands—almost entirely from Great Britain. In the course of time the Canadian indebtedness to other countries and the expenditures of her tourists, etc., will be so great that her exports will exceed her imports, although large amounts of capital will continue to flow into the country each year. Of course Canada will have no difficulty in making these interest payments, having regard to the rapid growth in the annual amount of wealth created by means of the capital she is importing. China, Japan, and Chile are other instances of borrowing countries whose imports exceed their exports in consequence of the inflow of large amounts of foreign capital.

II. EUROPE'S CAPITAL INVESTMENTS IN THE UNITED STATES

Almost from the day that it was discovered the United States has obtained supplies of capital from Europe. In the sixteenth, seventeenth, and eighteenth centuries the capital was imported for the development of sugar, tobacco, and cotton plantations and for mercantile purposes. Early in the nineteenth century large sums of money were invested by Great Britain in the securities of the United States government and in state and municipal government bonds. The application of steam to land traction greatly widened the need for capital in the United States, and London was asked for capital for railway construction. But it was not until the fifties and sixties that any large amount of capital was raised in London for railway construction.

In the fifties, sixties, and early seventies large sums of capital were invested by Europe, mainly by Great Britain and Holland, in the federal and state government loans, in municipal securities, in railroad bonds and stocks, and in the shares of land, mining, and other ventures. But the chief borrowers were railways. By 1883 the amount of American railway securities quoted in London amounted to the large total of $1,535,000,000. Since the early eighties the accumulation of capital in the United States itself has been on a great scale, and the federal and state governments have been able to borrow at home at lower rates of interest than the rates at which they could obtain capital from the investors of Europe. But the amounts of capital needed by American railways have been beyond the power of the American people to supply, and large amounts of capital have been invested by Europe in American railway and other securities. At the end of 1908 the securities of American railways quoted in the London Stock Exchange "official list" were of the nominal value of $7,500,000,000. Further, there are a large number of American industrial and other securities quoted in London which raises the total to over $9,000,000,000. Only a portion of this vast amount of securities quoted in London is owned by British investors. Great Britain possesses about $3,500,000,000 of American securities. To this sum has to be added the considerable amounts invested by the Continent. Large amounts of German, Dutch, and French capital are embarked in American undertakings, principally railways. A statement drawn up in 1902 at the instance of the French minister of finance from reports supplied by French diplomatic agents and consuls in various parts of the world placed the total amount of French capital invested at that time in the United States at 600,000,000 francs, or $120,000,000, but this figure appears to have been an underestimate. It is true that few issues of American securities are publicly quoted on the Paris Bourse, but relatively large amounts have been purchased privately by French investors in London and in New York. The French investments in the United States, including the Pennsylvania Railroad and other loans placed in Paris since 1902, amount to nearly 2,500,000,000 francs, or $500,000,000.

Estimates of the amount of capital invested by Germany in the United States were made in 1905 by the German Admiralty and published in a work entitled *Die Entwicklung der deutschen Seeinteressen im letzten Jahrzehnt.* These estimates placed the amount of German capital in the United States and Canada in 1904 at from 2,500,000,000 marks to 3,000,000,000 marks, say, $625,000,000 to $750,000,000. Since 1904 considerable additional sums of German capital have been invested in the United States. German bankers place the amount of the German investments in American securities at about $1,000,000,000. The amount of Dutch capital in the United States is about $750,000,000. American securities are also held in Belgium, Switzerland, and in other countries. In the aggregate the amount of European capital invested in "permanent" securities in the United States is approximately $6,000,000,000.

Beyond the fixed capital invested by Europe in the United States account has to be taken of the floating loans made by Europe to America. These floating loans are mainly incurred in the spring and summer months in anticipation of the produce shipments from the States in the fall months and they are then largely liquidated. The amount of the floating debt of the United States to Europe in the form of produce bills, finance bills, loans against securities, overdrafts, etc., averages about $400,000,000, reaching a larger sum in July and early August and falling to a much lower sum at the end of December. The rate of interest paid upon this floating debt, in so far as it consists of produce bills, is a very low one, the rate of interest charged on this class of loan being less than that on any other kind of security.

Including both the fixed investments and the floating loans, the amount of capital borrowed by the United States from other countries is about $6,500,000,000, the annual interest charge upon which is about $300,000,000.

An offset to the large amount of capital invested in the United States is the capital invested by American citizens in other countries, more especially in Mexico, Canada, in the South American States, in the Philippines, in Cuba, etc. The amount of American capital invested in other lands in this manner both publicly and privately is probably $1,500,000,000, yielding an income of about $75,000,000 a year. By deducting the interest—$75,000,000—received upon American capital placed abroad from the interest—$300,000,000—which the United States pay upon capital supplied to them by other lands, I arrive at a net payment of $225,000,000 by the United States to other countries for interest and dividends upon capital. This sum the United States has to remit each year by exports of produce.

III. TOURIST AND OTHER EXPENDITURES

The number of American citizens visiting other lands in the course of the year is now upward of 200,000. The data I have been able to obtain as to the expenditures of these tourists show that the sum expended by them approximates $1,000 per person. This sum includes merely the passage money and the sums expended in other countries for food, transportation, and other miscellaneous expenditures. It does not include the sums expended upon works of art, jewelry, clothing, etc., which are declared at the customs and are included in the value of the goods imported into the United States. In the aggregate, tourist expenditures for the purpose I have mentioned reach a total of about $200,000,000. On the other hand, a number of foreign tourists visit the United States and their expenditures should be placed against those of American citizens. Apparently the number of visitors is about 30,000. The expenditures of visitors to the United States may be taken at about $1,000 per person, excluding all shipping transportation, or an aggregate sum of visitors' expenditures in the United States of $30,000,000. On balance, therefore, the United States has to pay to other countries a sum of about $170,000,000 a year to cover tourist expenditures.

IV. EXPENDITURES OF IMMIGRANTS AND EMIGRANTS

There is another movement of population which creates large debit and credit items in the American trade balance. Each year a considerable number of persons, who previously had migrated to the United States, return to take up their residence in Europe. The numbers of these persons greatly fluctuate. In the four years previous to 1907 they averaged somewhat over 300,000 a year. The average amount of money carried by the 300,000 "emigrants" who leave the United States each year is not a very large sum; on the average it was probably not more than $200 per head, or a total sum of about $60,000,000. On the other hand, account has to be taken of the money brought in by immigrants from other lands. The average sum brought into the country is about $50 per head. In the aggregate the money brought into the country by immigrants probably reaches $50,000,000 per annum.

For all practical purposes I calculate that the money brought into the country by immigrants about counterbalances the money taken out of the country by emigrants returning to their native lands and by "other than cabin passengers" visiting other countries.

V. REMITTANCES TO FRIENDS

The great prosperity of the United States enables many of its citizens who have come from other lands to make gifts of large sums of money in the aggregate to friends in the old countries. The remittance of this money means that the United States have to send considerable quantities of produce abroad for which there is no corresponding item on the import side of the account, as the produce goes for the purpose of providing the funds necessary to cash the postal money orders and other drafts remitted to friends. The amount of these remittances is exceedingly difficult to calculate, but that it is large everyone admits. Mr. Charles F. Speare estimates that out of the savings of the foreign-born in America $250,000,000 a year are going abroad and that the annual rate of increase is about 10 per cent. The annual distribution of this great sum throughout Europe is, he says, in the following proportions:

Italy	$70,000,000
Austria-Hungary	65,000,000
Great Britain	25,000,000
Norway and Sweden	25,000,000
Russia	25,000,000
Germany	15,000,000
Greece	5,000,000
All others, including France, Switzerland, Belgium, and Denmark	10,000,000

From the data I have been able to obtain, I cannot confirm the calculation that the remittances to friends are as much as $250,000,000 a year. In the first place, a portion of this money is remitted by persons returning to live in Europe, whose remittances I have already allowed for. Secondly, many of the money orders and drafts are sent to Europe to pay for goods purchased. Very large numbers of small parcels of goods are imported and figure in the imports of produce. These small parcels are usually paid for by small drafts or by postal money orders. With the data at my disposal I do not feel justified in placing the amount of money remitted by American citizens to friends in other countries at a larger figure than $150,000,000. This is still a very large sum, and is a factor of great importance in calculating the trade balance of the United States and the amount of produce which has to be remitted for various purposes other than to pay for goods imported.

VI. FREIGHTS

The United States possesses a mercantile marine large enough to convey but a small portion of the produce they export and import, and considerable payments have to be made for shipping services. In 1907–8 the imports into the United States by sea were valued at $1,123,000,000. Of this amount 13.5 per cent was carried in American vessels and 86.5 per cent in foreign vessels. In the same year the exports from the United States were valued at $1,670,000,000, of which amount the produce conveyed in American vessels was only 7.2 per cent and the balance of 93.8 per cent was conveyed in foreign vessels. The sum which the United States had to pay to other lands for marine transportation is much smaller than is usually calculated. In the first place, other countries have to pay the cost of transporting the produce they purchase from the United States, and there is no burden upon America for freight upon goods shipped to other lands. Indeed, there is a credit item on goods exported, inasmuch as 7.2 per cent of the whole of the goods exported in 1907–8 was conveyed in American vessels. The freight which the United States has to pay for is that upon the imports conveyed in foreign vessels less the freight earned by American vessels in conveying exports. Thus the net amount of freight payable is in respect of goods amounting in value to about $850,000,000. There are, however, other credit items to be taken into consideration. The foreign vessels carrying goods from the United States to other countries are usually coaled and provisioned for the outgoing voyage in American ports, and the value of the coal and provisions supplied to them must be deducted from the payments which the United States has to make for freight brought into the country in foreign vessels. After taking all these factors into consideration I calculate that the net sum which the United States pays to other countries for the transportation of merchandise is about $25,000,000 per annum. Payment of this sum has also to be remitted to other lands by exports of produce.

VII. INSURANCE

A large amount of fire insurance is written each year in the United States by English and other offices and the sums payable to those offices in respect of insurance reaches a considerable figure. On the other hand, the fire losses of foreign offices in the United States are heavy and the profit which alone accrues to other countries is not a large item; at any rate it has not been a large item in the recent past. On the other hand, American life-assurance offices transact a fairly large business in foreign countries. Here again the claims have to be placed against the premiums received and the net sum coming to the United States is not an important item. In recent years the experience of American life offices has been abnormal. They have transacted very little new foreign business and their claims have represented a much larger proportion of their premium income than usual. Still, this situation will doubtless pass away and America will receive the normal amount of income from the business transacted in other lands by her life-insurance offices. On balance, if all kinds of insurance and assurance are combined, America probably has to pay very little on balance to other lands and the factor of insurance in calculating the trade balance may consequently be ignored.

VIII. SUMMARY OF REMITTANCES FOR INTEREST, TOURIST EXPENDITURES, GIFTS TO FRIENDS, AND FREIGHT CHARGES

Thus I arrive at the conclusion that the United States have on balance to pay other countries a net sum of $250,000,000 for interest upon foreign capital invested with them; that the expenditures of American citizens in other lands exceed by $170,000,000 the outlays of foreign tourists in the United States; that the remittances of foreign-born citizens to friends in Europe and elsewhere amount to $150,000,000, and that the net sum paid for ocean freight to other countries is $25,000,000. In other words, the exports of merchandise, gold, and silver from the United States must exceed the aggregate value of the merchandise, gold, and silver imported by nearly $600,000,000 in order that payment may be made for interest, tourist expenditures, etc. That is to say, America requires an excess of exports over imports of nearly $600,000,000 per annum in order to settle her trade balance. If she has a larger balance of exports over imports than this figure, she is repaying a portion of her obligations to other lands. If she has less than this sum, she is borrowing additional capital from other lands. It should, however, be clearly understood that this amount is subject to wide fluctuations, and is by no means a hard-and-fast obligation. The interest upon foreign capital invested in the country fluctuates to some extent with the rate of dividend earned upon the capital invested. If the country is in depression, the rate of dividend on much of the capital declines, and if the nation is prosperous it advances. The figure given is calculated upon the return upon capital in recent years. Again, the tourist expenditures vary widely. In years of trade activity and prosperity American visitors to Europe and other countries spend money freely, whereas in years of depression they are more economical. Further, the gifts of American citizens to their friends in Europe fluctuate with the condition of trade. In a period of depression the gifts are appreciably smaller than in years of activity. In this respect, however, it should be noted that depression in trade causes a great many persons to return to Europe; that these persons take with them large sums of money, and that this outflow of money has to be placed against the smaller gifts to friends at such times. Taking all these circumstances into account, I calculate that in a year of depression the obligation of the United States to other countries for interest, tourist expenditures, remittances to friends, freight, etc., is about $500,000,000 and that in years of normal trade activity it is about $600,000,000.

Perhaps the situation will be more clearly realized if I set it out in tabular form:

Foreign Trade of the United States, 1908–9

Merchandise:				
Exports—				
Domestic	$1,638,000,000			
Foreign	25,000,000			
Total		$1,663,000,000		
Imports		1,312,000,000		
Excess of merchandise exports over imports.			$351,000,000	
Gold:				
Exports		$92,000,000		
Imports		44,000,000		
Excess of gold exports over imports			48,000,000	
Silver:				
Exports		$56,000,000		
Imports		44,000,000		
Excess of silver exports over imports			12,000,000	
Total excess of merchandise, gold, and silver exports over imports				$411,000,000
Remittances for interest, etc.:				
Interest			$250,000,000	
Tourist expenditures			170,000,000	
Remittances to friends			150,000,000	
Freight			25,000,000	
Total remittances				595,000,000
Excess of sum remitted for interest, tourists, to friends, and for freights, over trade balance				$184,000,000

This balance of $184,000,000 has been liquidated by permanent or temporary investments of capital by other countries in the United States.

163. THE BALANCE OF TRADE AND GOLD SHIPMENTS[1]

About midday, on Monday, a wagon backed up to the steps of the Assay Office, the most antiquated building on Wall Street, and out jumped a couple of men who were joined by others from inside the building. A plank was run out, up to the door, along which, in rapid succession, forty kegs were rolled into the wagon, each numbered and stenciled with the letters "L. F." and duly recorded by a clerk who stood by. When all were aboard, the plank was drawn in and away rolled $2,000,000 in gold bars, for export to France.

Thus one saw, in the simple operation, the practical working-out of an international movement of credits, brought down to its ultimate settlement. As many watched the operation, someone remarked: "Is it not a strange thing that, notwithstanding the efficiency to which modern banking has been brought, in the last resort we must make remittance in this cumbersome manner, by shipping gold? This operation we are seeing now is exactly the same as was done a hundred years ago. It is a primitive way of settling debts, and yet, so long as gold maintains its pre-eminent place as a standard of money, it must ever remain the only way of settling international balances in their final stage."

164. COMMERCIAL CREDITS IN THE FINANCING OF IMPORTS AND EXPORTS[2]

Broadly speaking, commercial credits are of two classes—those issued to facilitate the import of merchandise and those issued to facilitate its export. Considering the question from the standpoint of New York, import credits are so much more important than export credits and issued in so much larger volume, they will be taken up first.

Not all the merchandise imported into the United States is brought in under commercial letters of credit, but that is coming to be more and more the way in which payment for imports is being arranged. Formerly an importer who had bought silk or white-goods in France went around to his banker, bought a draft on Paris for the required amount of francs and sent that over in payment. In some cases that is still the method by which payment is made, but in the very great

[1] From *The Wall Street Journal*, February 9, 1912.

[2] Adapted from Franklin Escher, *Elements of Foreign Exchange*, chap. ix. The Bankers Publishing Co., 1910.

majority of cases where business is being run on an up-to-date basis, a commercial letter of credit is arranged for before the importation is made. Of how great advantage such an arrangement is to the merchant importing goods the following practical illustration of how a "credit" works will show.

To exemplify the greatest number of points of importance possible in connection with the commercial credit business, the case of a shipment of raw silk from China will, perhaps, serve best. A silk manufacturer in Paterson, New Jersey, we will assume, has purchased by cable ten bales of raw silk in Canton, China.

The purchase of the silk having been consummated by cable, the first thing the purchaser would do would be to go to his banker in New York, lay before him an exact statement of the conditions under which the purchase was made, and get him (the banker) to open a commercial letter of credit covering those terms. Such a credit, of which a reprint is given herewith, would be in the form of a letter to the issuing banker's London correspondent, requesting him to "accept" the drafts of the sellers of the silk in Canton up to a certain amount and under certain conditions. These conditions are all very fully set forth in the letter of credit itself.

The silk importer having received this letter of credit from the banker in New York, sends it by first mail (or, if the case be urgent, cables its contents) to the seller of the silk out in Canton. The latter, having received it, is then in a position to go ahead with his shipment. The first thing he does is to put the silk aboard ship, receiving from the steamship company a receipt (bill of lading) stating that the ten bales have been put aboard, and making them deliverable *to the order of the banker in New York,* who issues the credit. The bill of lading being made out to his order is useless to anybody else. He and he only can get the silk out of the ship when it arrives in New York.

The shipper in Canton having received this bill of lading from the steamship company and having properly insured the goods and received a certificate stating that he has done so, is then in a position to go ahead and draw his draft for the cost of the silk. The London correspondent of the New York banker, to whom the letter of credit is addressed, is, say, the Guaranty Trust Company, London. Upon that institution the Canton silk firm, therefore, draws his draft in pounds sterling for the cost of the silk, attaching to the draft the bill of lading, an invoice, and the insurance certificate.

A pertinent inquiry at this point is as to why the letter of credit for silk shipped from a city in China directs that drafts be drawn on London—as to why London figures in the transaction at all? The answer is that drafts on London are always readily negotiable, and that London is the only city in the whole world drafts on which *are* readily negotiable in all places and at all times.

Credit No. 1301 (*Copy*)
£600 Sterling

GUARANTY TRUST COMPANY OF NEW YORK

New York, October 19, 1909

To the Guaranty Trust Company,
33 *Lombard Street, London.*

Gentlemen: At the request and for account of The Silk Manufacturing Co., Paterson, we hereby authorize Smith & Jones, Canton, China, or any other parties whose drafts you may be directed by their written order, or by us, to accept under this credit, to value on you at 4 months' sight for any sum or sums, not exceeding in all Six hundred Pounds Sterling (say £600 Sterling) to be used as they may direct for....................invoice cost of 10 bales raw silk to be purchased for account of....................and to be shipped to a Pacific port in the United States......................

The Bills must be drawn in Canton, China, prior to the first day of June, 1910 and advice thereof given to you in original and duplicate, such advice to be accompanied by Bill of Lading filled up to order of the Guaranty Trust Company of New York (with copy of invoice) for the property shipped as above. All the Bills of Lading issued, except one *sent to us* by the vessel carrying the cargo, and one retained by the captain of the said vessel, are to be forwarded direct to you. Copy of invoice, properly certified by the U.S. Consul, to be forwarded to us by the vessel, also advice of each Bill drawn.

And we hereby agree with the drawers, indorsers, and bona fide holders of Bills drawn under and in compliance with this credit, that the same shall be duly honored on presentation at your office in London.

We are, Gentlemen,
Your obedient servants,
Guaranty Trust Company of New York

N.B. Bills drawn under this credit must be marked Drawn
under Guaranty Trust Company of New York
Letter of Credit No. 1301 dated October 19, 1909
for £600
Insurance in order at Canton

Form of Commercial Letter of Credit

Assume now that the silk has been put aboard ship bound for the United States, that the shipper has drawn, say, a draft for £1,000 at four months' sight on the Guaranty Trust Co., London, and has attached thereto the bill of lading and the insurance certificate. Taking this draft around to his bank the shipper sells it for local currency at the then prevailing rate for four months' sight drafts drawn on London. The fact that it is drawn at four months' sight means that he will get a lower rate of exchange for it than if it were drawn payable on demand, but that was the arrangement with the buyer in New York—that the drafts against the silk were to have four months to run. The shipper of the silk is now out of the transaction.

Long before the silk gets to New York the draft will have reached London and will have been presented to the cashier of the Guaranty Trust Co., who, of course, was apprised of the credit opened on his bank at the time such credit was originally issued. Examining the draft and the documents carefully to see that they conform with the terms of the credit, the cashier of the Guaranty Trust Co., London, formally "accepts" the draft, marking it payable four months from the date it was presented to him. The accepted draft he hands back to the messenger of the bank who brought it in; the bill of lading, insurance certificate, and invoice he keeps. By the next mail steamer he dispatches these papers to the banker in New York who issued the credit.

For the time being, at least, that is to say, till the accepted draft comes due, the London banker is out of the transaction, which is now narrowed down to the importer of the silk in Paterson and the banker in New York who issued him the credit.

Assume now that a week has passed and that the New York banker finds himself in possession of a bill of lading for ten bales of silk, merchandise deliverable to his order. A few days later, perhaps, the goods arrive overland by fast freight from Seattle. The Paterson silk manufacturer, who is eagerly awaiting their arrival, comes around to the banker: "Indorse over the bill of lading to me," he says, "so that I can get the silk and start manufacturing it."

If the banker does it, he will be giving over the only security he has for the payment at maturity of the draft his London correspondent accepted, and for which he himself is responsible. Still, the manufacturer has to have his silk.

A number of different agreements exist between bankers and importers to whom the bankers issue credits, as to the terms on which the importers are to be allowed to take possession of the merchandise when it arrives here. Sometimes the goods are put into store and handed over to the merchant only when he shows that he has sold them and needs them to make delivery. Sometimes they are warehoused at once, and parceled out to the importer only in small lots, as he needs them. But more often the goods are delivered over to the importer on his signing one form or other of what is known as a "trust receipt." This document is simply a pledge on the part of the importer to hold the merchandise in trust for the banker and, as the merchandise is sold, to hand over the proceeds to apply against the draft drawn by the shipper of the goods. The theory of the thing is that by the time all the merchandise has been sold more than enough money will have been handed over to the New York banker to take care of the draft accepted by his London correspondent, the excess constituting the importer's profit.

The kind of trust receipt under which bankers are willing to give over the merchandise (the only collateral they have) naturally varies according to the standing of the house in question.

Returning now to the particular transaction in question, the point has been reached where the silk is in the importer's hands, that result having been accomplished without the importer having put up a cent of money. Moreover, for nearly four months to come there will be no necessity of the importer's putting up any money (unless he should sell some of the silk, in which case he is bound to turn over the money to the New York banker as a "prepayment"). But in the ordinary course of events the importer of the silk has nearly the four full months in which to fabricate the goods and sell them. At the end of that time the draft drawn by the firm in Canton and accepted by the Guaranty Trust Co., London, will be coming due, and the silk importer will be under the necessity of remitting funds to meet it. Twelve days before the actual maturity of the £1,000 draft in London, the New York banker will send to the manufacturer in Paterson a memorandum for £1,000 at, say, 4.86 (whatever is the current rate) plus commission. The silk firm pays in dollars; the New York banker uses the dollars to buy a demand draft for £1,000; a day or two before the four months' sight draft comes due in London this demand draft ("cover") is received in London from New York, and the whole operation is closed.

It has been deemed advisable to set forth the whole course of one of these import-financing transactions, in order that each successive step may be clearly understood. The question of just *why* this credit business is worked as it is will now be taken up.

The whole purpose of the business, it is plain enough, is to give the importer here a chance to bring in goods without putting up any actual money—in other words, of letting him use a larger capital than he is actually possessed of.

What does the seller of the goods get out of it? Payment for his goods as soon as he is ready to ship them. No waiting for a remittance, no drawing of a dollar-draft on an obscure firm in Paterson, N.J., which no Canton bank will be willing to buy at any price. From the shipper's standpoint, surely a most satisfactory arrangement and one which will induce him to quote the very best price for merchandise.

As to the banker's part in the transaction, the whole question is one of commission. The London banker on whom the credit is issued gets a commission from the American banker for "accepting" the drafts, and the American banker, of course, gets a substantial commission from the party to whom the credit is issued. Sometimes the banker in New York and the banker in London work on joint-account, in which case both risk and commissions are equally divided. But more often, perhaps, the London bank gets such-and-such a fixed commission for accepting drafts drawn under credits, and the New York banker keeps the rest of what he makes out of the importer.

It is well to note the fact that in those commercial credit transactions neither banker is ever under the necessity of putting up a cent of actual money. As in the case of foreign loans previously described, the banker's credit and the banker's credit only is the basis of the whole operation. The London bank never pays out any actual cash—it merely "*accepts*" a four months' sight draft, knowing that before the draft comes due and is presented at its wicket for payment, "cover" will have been provided from New York. The New York banker, on the other hand, merely sends over on account of the maturing draft in London the money he receives from the importer. He is under an obligation to the London banker to see that the whole £1,000 is paid off before the four months are over, but he knows the party to whom he issued the credit, and knows that before that time all the silk will have been manufactured and sold and the proceeds turned over to him. At no time is he out of any actual cash.

For purposes of illustration, the financing of the import of silk from China was chosen because the operation embodied perhaps more points of interest in connection with commercial credit business than any other one operation. Commercial credit operations, however, are of great variety and scope. They may involve, for instance, the import of matting shipped from Japan on slow sailing ships and where the drafts drawn run for six months or more, or they may involve the import of dress goods from France, in which case the drafts are often at sight. Furthermore, all credits are by no means issued on London. In the Far East, where tea or shellac or silk is being exported to the United States, London is known as the one great commercial and financial center, but in the case of dress goods shipped from Marseilles or Lyons, for instance, the credits would invariably stipulate that the drafts be drawn in francs on Paris.

But whether the material imported be dress goods from France or tea from China, the principle of the commercial credits under which the goods are brought in remains identically the same. In every case there is a buyer on this end who wants to get possession of the goods without having to put up any money, and in every case there is a seller on the other end who wants to receive payment as soon as he lets the merchandise get out of his hands. The banker issuing the credit is merely the intermediary, and the naming of some foreign point on which the drafts are to be drawn is merely incidental to the conduct of the operation.

One last point remains to be cleared up. The seller of the goods in the silk-importing operation described gets actual money for the goods as soon as he ships them—where does this actual money come from? In the last analysis, from the discount market in London, from the man in London who discounts the draft after it has been "accepted." The exporter in Canton gets the money direct from his banker in Canton, but the latter is willing to let him have the money in exchange for the draft only because he (the banker) knows that he can send the draft to London and that some one there will eagerly discount it. In that way the Canton banker gets his money back. The only party who is out of any money during the time the silk is being manufactured and sold in Paterson, N.J., is the party in London who has discounted the shipper's draft.

The real function of the banker, then, in these Commercial Credit transactions, is to open up the international loaning market to the importer. Through the system now in force this is accomplished by a banker in New York issuing a credit and by a banker in London putting his "acceptance" on drafts drawn under that credit. The combination makes the drafts *good;* makes the great discount market in London willing to take them, and absorb them, and advance real money on them. And for the opening up of this great reservoir of capital the importer here has to pay an interest rate of but from one to two per cent per annum. Naturally the business has grown to tremendous proportions.

165. A DOCUMENTARY COMMERCIAL LONG BILL

No. 167. FIRST
£500. NEW YORK, January 19, 1911

Sixty days after sight of this first exchange (second being unpaid) pay to the order of the *Y* National Bank of New York FIVE HUNDRED POUNDS STERLING.

Value received. Charge to the account of
(2500 bu. wheat by s.s. "Western") *X*

To Z Bank
London, England

X has sold the wheat to a person in England and has drawn on the bank designated by the buyer. *X* will probably attach to this bill the bill of lading of the transportation company, the insurance certificate of the insurance company and, sometimes, a hypothecation slip giving the purchaser of the bill of exchange a right to the goods shipped. Probably *X* will now sell the bill to some banker at the current rate of exchange. The banker will send it to his correspondent in England who will present it for "acceptance." The bill may then be held until maturity or may be sold in the open market. If this bill had not had the shipping documents, etc., attached to it, it would have been called a "clean bill." Clean bills are obviously not so well secured as documentary bills. The changes in the above form which would be necessary to make it a "demand bill," or a "bill drawn against securities," or a "banker's demand draft," or a "banker's long draft" are obvious.

166. THE PAR OF EXCHANGE AND APPROXIMATE GOLD POINTS

LONDON

Name of Center	Par	Gold-importing Point	Gold-exporting Point
Berlin	20.43[a]	20.53	20.32
Amsterdam	12.107[b]	12.17	12.02
New York	4.866[c]	4.88	4.84
Paris	25.225[d]	25.34	25.12½

[a] Marks per pound sterling
[b] Florins per pound sterling
[c] Dollars per pound sterling
[d] Francs per pound sterling

Paris

London	25.225[d]	25.12½	25.34
Berlin	123.46[e]	122.90	124.14
New York	518.26[f]	515.75	523.05
Amsterdam	208.32[g]	207.16	210.16

New York

London	4.866[c]	4.84	4.88
Paris	5.182[h]	5.23	5.16
Berlin	95.28[i]	94.50	96.25

Berlin

London	20.43[a]	20.33	20.53
Paris	81.00[k]	80.56	81.37
New York	419.79[l]	415.25	423.30
Amsterdam	168.74[m]	168.25	170.50

[a] Marks per pound sterling
[c] Dollars per pound sterling
[d] Francs per pound sterling
[e] Francs per hundred marks
[f] Francs per hundred dollars
[g] Francs per hundred florins
[h] Francs per dollar
[i] Cents per four marks
[k] Marks per hundred francs
[l] Marks per hundred dollars
[m] Marks per hundred florins

167. FOREIGN EXCHANGE TRANSACTIONS[1]

Among the various transactions which may properly be termed foreign exchange are the following: the issuing of a money order, draft, check, or bill of exchange payable in a foreign country; the shipping of currency or coin from one country to another; an order, either written or cabled (telegraphed), to have a certain sum of money paid in a foreign country; a draft payable in a foreign country drawn for the value of goods exported; a draft, money order, check, or bill of exchange drawn in a foreign country payable in this country; the buying or selling of foreign currency or coin, whether here or abroad; a circular letter of credit, commercial or mercantile letter of credit, circular note, travelers' cheque, or other forms used either for obtaining money or credit in a foreign country.

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[1] From Howard K. Brooks, *Foreign Exchange Text Book*, pp. 1–2. The Author, 1906.

168. FOREIGN EXCHANGE QUOTATIONS[1]

Quotations on foreign exchange, as they appear in the financial columns of our leading daily newspapers and in weekly financial publications, are seldom understood except by those very familiar with the business. Although almost every newspaper has a different way of quoting the rates, some more complete than others, the following, which is a facsimile of a clipping from a daily paper, is given for illustration and explanation by reason of its completeness:

Foreign Exchange

Sterling was firm with bankers' 60-day bills quoted at ⅛ of a cent, cheques 5, and cables 10 points above Friday's close. Rates for actual business follow:

Bankers', 60 days	4.84⅛ @4.84¼
Bankers', sight	4.8695@4.87
Cable transfers	4.8735@4.8740
Documents for payment	4.84⅜ @4.84⅞
Ninety days on bankers	4.82½ @4.82⅝
Commercial sight	4.8685@4.8690

Continentals were less active, virtually unchanged. Bankers' sight francs closed at 5.16¼@5.16¼ plus $\frac{1}{32}$; marks, 95⅝ less $\frac{1}{32}$ @95⅝; guilders, 40⅜ less $\frac{1}{32}$@40⅜.

Following were the posted rates of the leading drawers of foreign exchange:

Sterling	4.88
Paris, francs	5.15
Berlin, reichsmarks	95¾
Amsterdam, florins	40⅜
Antwerp, francs	5.15⅝
Genoa, lire	5.15⅝
Zurich, francs	5.15⅝
Vienna, kronen	20.40
Stockholm, kronors	26.90
St. Petersburg, rubles	51.70

"Firm" means a good demand with prices tending upward.

"Steady" would mean a fair demand with prices likely to remain stationary.

"Strong" would mean a large demand with prices certain to go higher.

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[1] From Howard K. Brooks, *Foreign Exchange Text Book*, pp. 116–19. The Author, 1906.

"Dull or weak" would mean very little or no demand with prices tending lower.

"Bankers' 60 days": This quotation is for bankers' drafts drawn in pounds sterling upon (or payable by) a bank in London, 60 days after sight or after acceptance by the paying bank. The rates 4.84$\frac{1}{8}$ to 4.84$\frac{1}{4}$ mean per pound sterling.

"Bankers' sight": A bankers' draft for a sum in pounds sterling upon a bank in London, payable at sight or upon demand. The rates $4.8695 to $4.87 mean per pound sterling.

"Cable transfers": Where the money (pound sterling) is paid abroad (London) upon an order sent by cable. The amount would be paid in London immediately upon receipt of cable instructions, usually within a few hours.

"Documents for payment": This refers to commercial bills of exchange with documents (bill of lading and insurance certificate attached to draft), drawn against an export shipment, the words "for payment" meaning that the draft must be paid before documents are given up, thus insuring payment before delivery of goods. If "documents" were for acceptance the documents would be delivered when draft was accepted by person upon whom drawn (called "drawee"), thus enabling drawee to obtain goods before payment of draft. This quotation refers to drafts drawn in pounds sterling, drawn payable 60 days after sight (acceptance). The rates quoted are per pound sterling.

"Ninety days on bankers": Means drafts drawn by either banks or merchants (exporters) in pounds sterling upon (payable by) a bank, 90 days after the draft is accepted by bank upon which drawn.

"Commercial sight": Drafts drawn by merchants (exporters) payable at sight against balances in a bank abroad which may have accumulated through sale of merchandise exported.

"Continentals were less active, virtually unchanged": This refers to bills of exchange and drafts upon cities or countries of Europe, other than Great Britain.

"Bankers' sight francs": This refers to drafts drawn by bankers in money of France (francs) payable by a bank, presumably at Paris. The quotation 5.16$\frac{1}{4}$ to 5.16$\frac{1}{4}$ plus $\frac{1}{32}$ is for francs per $1.00. The quotations for marks are for 4 marks on Germany, and those for guilders are on Holland, per guilder or gulden, or florin.

"Posted rates": The quotations given as posted rates mean rates at which leading sellers of exchange were selling over their counter to customers, while the preceding rates in the above clipping refer to rates at which bankers bought the exchange, or in other words, "buying rates."

"Sterling": This quotation is for sight drafts drawn in the money of England, pounds sterling.

"Paris, francs": Drafts or checks drawn in French francs payable only at Paris. The rate is per $1.00.

"Berlin, reichsmarks, demand": A draft drawn payable at Berlin, Germany, in marks. The rate is for 4 marks.

"Amsterdam, florins": Demand checks or drafts on Amsterdam, Holland, drawn in money of Holland, florins or guilders (or gulden) (different nomenclature of same money). The rate is per gulden.

"Antwerp, francs": This is a quotation for 5 francs 15⅝ centimes per $1.00 for demand drafts drawn payable at Antwerp, Belgium. This country has the same monetary system as France, with coins of same name.

"Genoa, lire": This quotation means that for a demand check or draft on Genoa, Italy, you would have to pay at rate of 5 lire 15⅝ centesimi per $1.00.

"Zurich, francs": For demand checks and drafts payable at Zurich, Switzerland, you would be allowed 5 francs 15⅝ centimes for each $1.00.

"Vienna, kronen": For demand checks or drafts on Vienna, Austria. The rate quoted is 20.40 [cents] per krone, the money of Austria.

"Stockholm, kronors": For demand checks and drafts on Stockholm, Sweden. The rate is 26.90 cents per kronor, the money of Norway, Sweden, and Denmark.

"St. Petersburg, rubles": For demand checks and drafts on St. Petersburg, Russia. The rate is 51.70 cents per ruble, the money of Russia.

169. THE FOREIGN EXCHANGE MARKET[1]

The foreign exchange market is in every sense "open"—anyone with bills to buy or sell and whose credit is all right can enter it and do business on a par with anyone else. There is no place where the trading is done, no membership, license, or anything of the kind. The

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[1] Adapted from Franklin Escher, *Elements of Foreign Exchange*, chaps. ii, iii, and v. The Bankers Publishing Co., 1910.

"market," in fact, exists in name only; it is really constituted of a number of banks, dealers, and brokers, with offices in the same section of the city, and who do business indiscriminately among themselves—sometimes personally, sometimes by telephone, by messenger, or by the aid of the continuously circulating exchange brokers.

The system is about as follows: The larger banks and banking houses have a foreign exchange manager, or partner, taking care of that part of the business, whose office is usually so situated as to make him accessible to the brokers who come in from the outside, and whose telephoning and wiring facilities are very complete. These larger houses have no brokers or "outside" men in their employ. The manager knows very well that plenty of chance to do business, buying or selling, will be brought in to him by the brokers and that his wires keep him constantly in touch with his fellow bankers.

Next come the big dealers in exchange, some of whom do a regular exchange business of their own, the same as the bankers, but who also have men out on the street "trading" between large buyers and sellers of bills. Such houses are necessarily closely in touch with banks, bankers, exporters, and importers all over the country, and have always large orders on hand to buy and sell exchange. Some of the bills they handle they buy and use for the conduct of their own business with banks abroad, but the more important part of what they do is to deal in foreign exchange among the banks. They are known as always having on hand for sale large lines of commercial and bankers' bills, while on the other hand they are always ready to buy, at the right price.

After this class of houses come the regular brokers—the independent and unattached individuals who spend their time trying to bring buyer and seller together, and make a commission out of doing it. In a market like New York the number of exchange brokers is very large. Like bond-brokerage, the business requires little in the way of office facilities or capital, and is attractive to a good many persons who are willing to accept the small income to be made out of it in return for being in a business where they are independent.

There being no regular market in which foreign exchange rates are made, it follows that the establishment of rates each morning and during the course of each day will be according to the supply and demand for bills. Rates are constantly changing, and changing at times almost from minute to minute. Yet so complete is the system of telephones and brokers that any exchange manager can tell just about what is taking place in any other part of the market. As to the actual fluctuation of exchange, while it is true that rates at times rise and fall with all the violence so often displayed in the security markets, most of the time they move within a comparatively narrow range. On an ordinary business day, for instance, the change is not apt to run over fifteen points (15-100 of a cent per pound).

As to the relative importance of the different kinds of exchange, sterling, of course, occupies the most prominent position. What proportion of the total of exchange dealt in in the New York market consists of sterling it is impossible to determine, but that it is as great as the volume of all the other kinds of exchange put together can safely be said. Many big dealers, indeed, make a specialty of sterling, and if they handle any other bills at all, do so only on a very small scale. As to whether francs or marks come next in volume, there is a difference of opinion. These are the three great classes of exchange and are the basis of at least nine-tenths of all foreign exchange operations.

Turning now to consideration of the various sources from which springs the demand for foreign exchange, it appears that they can be divided about as follows:

1. The need for exchange with which to pay for imports of merchandise.

2. The need for exchange with which to pay for securities (American or foreign) purchased by us in Europe.

3. The necessity of remitting abroad the interest and dividends on the huge sums of foreign capital invested here.

4. The necessity of remitting abroad freight and insurance money earned here by foreign companies.

5. Money to cover American tourists' disbursements and expenses of wealthy Americans living abroad.

6. The need for exchange with which to pay off maturing foreign short-loans and finance-bills.

7. Coming to maturity of issues of American bonds held abroad. Where some especially large issue runs off without being funded with new bonds, demand for exchange often becomes very strong. Especially is this the case with the short-term issues of the railroads and most especially with New York City revenue warrants which have become so exceedingly popular a form of investment among the foreign bankers.

8. Low money rates here, which result in a demand for exchange with which to send banking capital out of the country.

9. High money rates at some foreign center which create a great demand for exchange drawn on that center.

The causes which make up for low rates must necessarily be, to a certain extent, merely the converse, but for the sake of clearness they are set down. The division is about as follows:

1. Especially heavy exports of merchandise. Exports continue on a certain scale all through the year, but are heavier at some times than others.

From the middle of August, when the first of the new cotton crop begins to find its way to the seaport, until the middle of December, when the bulk of the corn and wheat crop exports have been completed, exchange in very great volume finds its way into the New York market. Normally this is the season of low rates.

2. Large purchases of our stocks by the foreigners and the placing abroad of blocks of American bonds.

3. Distrust on our part of financial conditions existing at some point abroad where there are carried large deposits of American capital. In the everyday life of the exchange market, political development of an unfavorable character and war rumors are about the most frequent and potent influences toward the condition of uneasiness above referred to. Few war rumors ever come to anything, but there are times when they circulate with astonishing frequency and persistence and cause decided uneasiness concerning financial conditions at important points. At such times bankers having money on deposit at those points are apt to become influenced by the drift of sentiment and to draw down their balances. Here, again, operators in exchange, keenly on the alert for such chances, will very likely begin to sell the exchange market short and often succeed in breaking it to a degree entirely unwarranted by the known facts.

4. High money rates here.

5. Unprofitably low loaning rates at some important foreign center where American bankers ordinarily carry large balances on deposit.

These are the main influences bearing on the fluctuation of exchange. Needless to say they are not exerted all one way, or one at a time, as set forth. The international money markets are a most decidedly complex proposition, and there is literally never a time when several influences tending to put rates up are not conflicting with several influences tending to put rates down. The actual movement of the rate represents the relative strength of the two sets of influences.

170. FACTORS AFFECTING THE RATES OF FOREIGN EXCHANGE

The fluctuations in sterling exchange last week[1] were not important, but such changes as actually occurred were dominated mainly by the course of the international money markets. There has been a decided easing-up in nearly all of the world's leading financial centers, the March quarterly settlements having been completed without the acute disturbances that were feared only a short time ago. The European political situation has also been cleared to a considerable extent, although the defiance of the wishes of the powers by Montenegro militates against a complete restoration of confidence. The position of the European banks last week was watched with more active interest than on any previous occasion for quite a while. The strain upon their resources for the March quarterly settlements was very severe, but they came out of it with better results than were anticipated.

The Bank of England, which, after all, is the great leader of European finance, did extremely well under the circumstances. While it lost $5,000,000 in total reserve and $1,200,000 in bullion, it was enabled to decrease loans $24,700,000 and thereby raise its percentage of reserve to 41.85, which is over 2 per cent better than in either 1912 or 1911. The Bank of France made an actual gain in gold of $2,133,000, but, in order to tide over the settlements, had to expand its note circulation $51,990,000 and its loans $31,745,000. The Bank of Germany was under greater pressure than any of the other big institutions. The bank suffered a decrease in its stock of gold and silver of $15,994,000 and increased its note circulation in the enormous sum of $136,121,000 and its discounts $121,018,000. But poor as this showing was, it was better than expected, as the aggregate depreciation in its status was $20,750,000 less than in 1912. Paris discounts remained at 4 per cent, but, as compared with a period just prior to the settlements, Berlin rates declined from 6 to 4¾ per cent and English rates from 4⅞ per cent to 4⅜ per cent. These figures reflect in a striking way the easing-up in discounts abroad. There was some talk during the week about the Bank of England reducing its minimum rate, but it is highly probable that no such action will be taken until it is demonstrated that the German money markets are going to remain on an easier basis and also until the political atmosphere becomes still clearer.

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[1] From *The Journal of Commerce and Commercial Bulletin*, April 7, 1913.

As is well known, there is a great congestion of securities at London, with constant solicitations for more capital, and this may assist in keeping the bank rate where it is for some time. What throws strong light upon the congestion of securities at London was the announcement on Saturday that only 6 per cent of the South African $20,000,000 loan was subscribed for, the large balance being left on the hands of the syndicate. The situation abroad of course caused a relaxation in the previous demand for exchange, particularly for cable transfers, and the market eased off to 4.87 for demand and 4.8755 for cables, but soon rallied to 4.8720 and 4.8870, respectively. The rally, however, was not maintained. The recovery was due to the pronounced relaxation in money in the local market, where the renewals for call loans fell to $3\frac{3}{4}$ per cent and quotations for all maturities to $4\frac{1}{2}$@$4\frac{3}{4}$ per cent. So it will be seen that the easing-up in money here and abroad worked somewhat at cross-purposes.

Aside from the increased ease in money here, exchange was prevented from suffering any material decline through the continued scarcity of commercial bills. One important reason for the small supply of commercial exchange was the decreased exports of cotton from the United States. From the opening of the cotton year to the present time exports of the southern staple show a decrease of 2,000,000 bales. As cotton is always relied upon to furnish a large volume of exchange for the country to liquidate its foreign indebtedness and pile up a credit balance, it will be evident to all that this loss of 2,000,000 bales of cotton is a very significant matter. But the fact should not be lost sight of that there is still a considerable amount of cotton held in the South, and also that, with the easing-up in money abroad and the settlement of the Balkan question, exports are likely to increase in the future. Last week it became apparent that both English and Continental spinners were drawing freely upon accumulated supplies, and that stocks were being steadily reduced. These therefore must be replenished, and easier money will greatly facilitate replenishment. Grain is also likely to furnish an increased volume of exchange in the future. Farm reserves are unusually large; hence there will be a liberal amount of wheat, corn, and other cereals for shipment. Exports already are showing an increase. The outgo of wheat last week reached 4,000,000 bushels, an increase of 3,000,000 bushels over the preceding week, while that of corn rose to nearly 2,000,000 bushels, a gain of over 400,000 bushels. The opening of navigation will release a large amount of grain, which will be available for export.

Closing rates were as follows:

London—Bankers' 60 days	4.8325@4.8350
Demand sterling	4.8705@4.8710
Cable transfers	4.8760@4.8765
Demand, N.Y., in London	4.88⅜ @4.88$\frac{5}{16}$

A decline of 30 to 35 points occurred in sterling exchange yesterday,[1] when demand bills sold as low as 4.8660, while cable transfers dropped to 4.8705. These are the lowest figures so far touched on the current downward movement.

Among the circumstances that contributed to this end were easier English discounts and continued buying of stocks in this market by the foreigners, as well as the placing abroad of a portion of recent bond issues. The supply of bills consequently was larger than of late. Now that the fortnightly settlement at London is out of the way the difference between demand bills and cable transfers is less marked than hitherto.

Final quotations for actual business were as follows: bankers' 60 days, 4.8305 @ 4.8315; bankers' sight, 4.8660 @ 4.8665; cable transfers, 4.8705 @ 4.8710; commercial 60 days, 4.83; commercial 90 days, 4.81¼.

The movements in sterling exchange last week[2] were more important than for some time, demand bills having risen close to 4.87 and cable transfers to 4.87⅜, the highest quotations in months. Underlying this sharp advance were several influences of moment. In the first place open market discounts at London advanced to 4¼ per cent on the spot, while the rate to arrive was 4½ per cent, the official bank rate. The Bank of England showed the highest percentage of reserve in a series of years, but the bullion account was $15,000,000 below that of last year. Naturally under existing conditions no reduction was made in the rate. The difficulty of the English money market centered in the fact that Germany was not only a borrower in London, but took a round amount of gold in the open market, and also some German coin from the Bank of England. In addition, there were new demands for capital and considerable pressure from syndicates loaded with undigested securities. Firm money and discount rates prevail all over Europe, as there are still many big loans pending, the latest one in point being an effort on the part of Belgium to borrow over $100,000,000 in Paris.

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[1] From *The Journal of Commerce and Commercial Bulletin*, April 12, 1913.

[2] From *The Journal of Commerce and Commercial Bulletin*, June 9, 1913.

During the past week there was a fair demand to remit June interest and dividend money to Europe, and tourists' letters of credit again figured as a strengthening force. There were also the usual home returning immigrants, who in the aggregate take out a large amount of money in the course of the season. On the other hand, there was a reduction in the supply of commercial exchange, such as usually sets in about this time, when exports are on the wane. Last week exports of produce and merchandise from New York alone decreased $5,300,000, which, under the present conditions in the exchange market, was quite an important circumstance. Then the unsettled condition of the European security markets caused selling of stocks to New York to the extent of about 90,000 shares, which in itself was a matter of no mean importance. The sharp advance in time money rates here, with normal conditions abroad, would have led up to heavy lending of foreign capital and the consequent drawing of finance bills. But Europe has such financial troubles of its own at present that there was practically nothing doing in the way of placing capital in this market.

The high range of exchange quotations brought about an export of $200,000 gold to Antwerp. This at once raises discussion as to the possibility of the resumption of shipments to Paris. As the situation stands the Bank of France could secure gold now cheaper than it did before, if it renewed former special inducements.

Closing rates were as follows:

London—Bankers' 60 days	4.8285@4.8295
Demand Sterling	4.8675@4.8680
Cable transfers	4.8710@4.8715
Grain bills, 7 days	$4.85\frac{3}{4}$
Grain bills, 60 days	$4.83\frac{1}{4}$ @ $4.83\frac{3}{8}$
Commercial, sight	$4.86\frac{1}{2}$
Demand, New York in London	$4.87\frac{5}{8}$@ $4.87\frac{9}{16}$

XIII. TARIFF POLICY

171. A SUMMARY OF THE TARIFF HISTORY OF THE UNITED STATES

The first period, 1789–1815: A tariff for revenue.—One of the chief causes leading to the adoption of our Constitution was the necessity of giving the federal government power to levy taxes and regulate foreign commerce. As the people of the country were very much opposed to taxation the easiest way to secure revenue was through the indirect method of customs duties. It was but natural, therefore, that the first act of Congress under the new Constitution should be the tariff of 1789. Specific duties were levied on about thirty commodities, ad valorem rates of 7½ to 15 per cent were imposed on certain other articles, and 5 per cent on all articles not elsewhere specified. The average rate of duty was 8½ per cent. Among the important duties were those on molasses, sugar, tea, coffee, wines and spirits, hemp, cordage, boots, leather, earthenware, glass, nails, iron, steel, and salt. The main purpose, as was to be expected, was revenue rather than protection and this is reflected in the act by the low rates of duty and the inclusion of such articles as sugar, coffee, tea, and wines, which nobody expected would be extensively produced in this country.

During the next quarter-century the rates on various commodities were raised from time to time, but in nearly every case the immediate and most important cause was the need for more revenue, and such protection as was given was largely incidental. This continued through the War of 1812, at the opening of which duties were doubled, thus raising the rate on many commodities to about 35 per cent. During most of this period, moreover, agriculture and foreign commerce were particularly profitable and there was little incentive to enter upon new lines of manufacturing. The restrictions upon foreign commerce beginning with the orders and decrees of England and France and our own Embargo continued through the War of 1812 and soon completely changed the whole situation. The supply of foreign manufactures being so completely cut off, the country was thrown back upon its own resources and forced to start in manufacturing for itself. Under this protection and stimulus a great variety of manufactures sprang up, many of the concerns being very inadequately equipped and managed. Then, when the close of the war in 1815 let in a flood of foreign goods, a large portion of which sold at unusually low prices, the domestic manufacturer found himself in difficulties and at once sought protection through the tariff.

The second period, 1816–1860: A low protective tariff.—As a result the country now entered upon a new period in its tariff history. Protection rather than revenue became the main objective and in consequence there was a distinct change both in the kind of commodities protected and in the construction of the tariff duties. The protective policy adopted at that time has been continued ever since but we can divide its history into two main periods with the Civil War as the dividing point, the first period being marked by a relatively low protective tariff and the second by a distinctly higher level of duties. The earlier period may be further subdivided into the years of rising duties culminating with the tariff of 1828 and the succeeding years of falling duties.

The tariff of 1816, which marks the beginning of the new period, did not in most cases impose as high a rate of duty as had prevailed during the war, though higher than during the preceding years of peace. The articles protected and the method of levying the duties, however, show the distinctly protectionist form which the tariff then assumed. Duties of 25 per cent were placed on manufactures of cotton and wool, to be reduced to 20 per cent in 1819. In addition the minumum valuation on cotton cloth was to be 25 cents a square yard, thus giving a higher duty on the cheaper grades. A duty of 30 per cent was placed on rolled or hammered iron, leather, and several other articles.

Unusually severe competition from abroad coupled with industrial depression in this country led to a further increase in the tariff of 1818, which raised the duties on iron and postponed the reduction of the duties on cotton and woolen manufactures till 1826. Similar causes led to another effort to increase duties in 1820 and the bill failed by only one vote in the Senate. The advocates of protection were more successful in their next attempt when the tariff of 1824 brought another increase in duties, shared, among other articles, by wool, hemp, cutlery, lead, and manufactures of cotton, wool, silk, iron, hemp, and glass. The duty on the important grades of wool and cotton manufactures was 33⅓ per cent and the minimum valuation clause was extended to woolens. The highest rates of duty reached during this period, however, came under the tariff of 1828. Woolen cloths were granted a duty of 45 per cent. Heavy duties were placed on hemp, flax, raw wool, molasses, and manufactures of iron. For purely political reasons many provisions objectionable to New England manufacturers were intentionally inserted by southern members in the hope that this would lead to the defeat of the bill. Nevertheless, it was finally accepted, though commonly spoken of as the tariff of abominations.

This marks the end of the upward movement of duties during the period preceding 1860. These years between 1816 and 1830 also cover the most critical time in the history of our manufactures. The reasons for this are: (1) the country, theretofore almost exclusively given over to agriculture and commerce, was just beginning to develop manufactures; (2) technical processes in the leading industries were changing very rapidly; (3) capital and labor suited for the factory were still relatively scarce and markets were limited; (4) our manufactures had developed rapidly under the almost absolute protection of the period of restricted commerce and now for the first time had to face competition from the more advanced manufactures of Europe; (5) owing to the great depression in English industry which occurred at this time such competition was especially severe and was felt the more since it was not a period of marked prosperity in this country.

The remainder of the period of low protective tariff, covering the years from 1832 to 1860, is marked by a general downward tendency in duties. The chief reasons for this appear to be: (1) the growing opposition of the South and its more dominant influence in public affairs; (2) the fact that by 1830 the manufactures had passed through the most critical period of growth and were sharing with the country in general the prosperity of the years immediately following 1830; (3) the favorable fiscal situation, the government debt having been entirely paid off by 1835, and the revenue in ordinary years, being more than adequate to meet expenses.

The growing opposition to protection on the part of the South was indicated by the Nullification movement following the tariff of 1828. A slight concession was made in 1830 by the reduction of the duties on such revenue-producing articles as salt, molasses, coffee, and tea. This was followed by the more general reduction of the tariff of 1832 which did away with the worst of the "abominations" and cut the duties to about the level of the tariff of 1824. The cut was carried much farther by the compromise tariff of 1833 which provided for a gradual reduction of duties to a level of 20 per cent to be reached in 1842. The low level lasted but a few months, when a change in the political party in control of the government, combined with a temporary deficit in the Treasury, led to a revision of the tariff. The tariff of 1842 considerably increased the duties. In a few cases such as iron, sugar, window glass, and salt they ranged much above 50 per cent, but the general level was about that of the tariff of 1832. The next presidential election brought another change in the party in power and consequently another tariff law. The tariff of 1846 or Walker tariff was intended as a step toward free trade. Specific duties were abolished and all commodities were divided into classes, a fixed ad valorem rate being established for each class. The more important commodities were placed in Classes C and D with duties of 30 and 25 per cent respectively. There was no further change till the tariff of 1857, when a superabundant revenue and a decade of unusual prosperity led to a further reduction with but slight objection. The classes of commodities were left about as before but the rates on Classes C and D were lowered to 24 and 19 per cent respectively, so that the average paid on dutiable imports was about 20 per cent. The period thus ending is marked by lowered rates of duty, rapidly advancing manufactures, and a lessened demand for protection.

The third period, 1861—: A high protective tariff.—The Civil War marks the beginning of a new period in our tariff history, a period when the level of duties prevailing was distinctly higher and the construction of the tariff schedules more exclusively designed to secure protection than ever before.

As has so frequently been the case, the immediate cause for the changes was due not to the needs of industry but to the lack of revenue. In fact even before the war broke out the deficit in the Treasury following the decline in imports after the panic of 1857 started the move to increase duties which resulted in the Morrill tariff of 1861. The outbreak of the war with its enormous expenses necessitated a large increase in revenue and along with the imposition of new income and internal revenue taxes the customs duties were increased. There were many changes at this time but the most important acts were those of 1862 and 1864, and duties were advanced so rapidly that under the tariff of 1864 the country came out of the war with the rates on dutiable commodities averaging 47 per cent.

The most striking feature of the period following was that these high duties, which everybody supposed were simply temporary and only justified by the existence of a great national emergency, were not appreciably reduced, with the exception of revenue-producing duties, but in many cases still further increased as time went on so that the policy of high protection became a permanent one. The following are among the more important reasons for this change: (1) the manufacturers, many of whom suffered especially at the close of the war, having become adjusted to high rates during a considerable period, naturally opposed any reduction; (2) the protected interests were better organized than ever and seem to have been more potent than formerly; (3) the opposition of the South was no longer a factor of such importance as before the war; (4) it was claimed that the heavy debt created by the war necessitated more revenue, though in fact the receipts from customs duties combined with those from internal revenue duties soon proved more than adequate for the needs of the government. This was partly due to the permanent retention of some of the internal revenue duties, chiefly those on tobacco and distilled liquors, which yielded so large a return that from this time on the customs duties made up scarcely more than 50 per cent of the total receipts of the government as compared with nearly 90 per cent during the period preceding the war.[1]

During the years immediately following the war there were a number of changes affecting particular commodities, most of them being designed to abolish duties chiefly revenue-producing in character, while others increased duties primarily for protection. Even then the revenue receipts were excessive, so in 1873 a general cut of 10 per cent was made, but in 1875, when the receipts fell off owing to the panic, the old rates were restored. With returning prosperity in the eighties the receipts far exceeded even the resulting lavish appropriations of Congress and caused the agitation which finally led to a general revision under the tariff of 1883. A small reduction was made in a considerable number of cases, though chiefly where protection was either unnecessary or already excessive, but in some instances still higher duties were imposed. The net result was a slight reduction, the average rate on dutiable commodities being 38 per cent.

During the next few years there were several attempts to secure still further reduction, but owing to the fact that political power in the two branches of Congress was divided between two parties nothing was accomplished till 1890, when the McKinley tariff was passed. This act brought in a distinctly higher level of protective duties, the average being 49 per cent. Among the more important advances were those on wool and woolens, silks, the finer cottons, linens, cutlery, and tin plate, while a special attempt was made to extend the benefits of protection to the farmer by duties on various farm products. The difficulty with the excessive revenue was met by abolishing the duty of 2 cents a pound on sugar, which yielded a large return, and in compensation giving domestic sugar-growers an equivalent bounty. There was also a provision for reciprocity, which, however, accomplished little.

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[1] [See Selection 245, Chart of Principal Sources of Federal Revenue, by Decades, 1800–1910.—EDITORS.]

The return to power of the Democratic party combined with a deficit led to the Gorman-Wilson tariff of 1894. As passed by the House several important commodities were placed on the free list, but in the Senate opposition was so strong that only raw wool was finally left there. Reductions were made on a large number of commodities, but they were not so severe as had been anticipated, and the resulting average rate of duty was about 40 per cent. For the sake of the revenue a moderate duty on sugar was reimposed and an income tax, later declared unconstitutional, was added.

The Republicans, victorious in a campaign fought over the question of free silver, no sooner returned to power than the Dingley tariff of 1897 was enacted. Under this law the protective duties were advanced to an average rate of 57 per cent, the highest in the history of the country. The duty on raw wool was restored and that on sugar was increased as were the duties on most of the textiles.

In the course of the unusually long period during which this tariff—the high-water mark of protection—remained on the statute books there developed a widespread demand for a reduction of the tariff. Among the more important causes were the following: (1) manufacturers of the more finished products supplying the domestic market felt that the tariff increased the cost of their raw material; (2) a similar complaint was made by those manufacturing for a foreign market where they had to compete with rivals enjoying free raw materials; it was also argued that lower American duties might secure concessions in the form of lower duties on American goods abroad; (3) there developed a feeling among the farming class that in actual operation protection chiefly benefited the manufacturer while the farmer gained very little and generally lost by it; (4) the rapid growth of trusts, which many believed were at least aided by, if not primarily due to, the tariff; (5) the rising cost of living which it was argued could be partially counteracted by lower tariff duties; (6) the desire to conserve our natural resources, the exhaustion of which was hastened by the tariff; (7) a growing sensitiveness to any form of special privilege and a feeling that the tariff was one of the chief sources of such privilege.

As a concession to the popular demand the Payne-Aldrich tariff of 1909 was passed. The generally announced plan to reduce duties to an amount just sufficient to offset the difference in cost between the United States and other countries indicated that many had been unnecessarily high before. The result, however, was disappointing, the reductions being slight and usually where they had little effect. It was this dissatisfaction which led the Democratic party on its return to power to undertake at once a revision of the tariff.

The Underwood Tariff act of 1913 brought a very real and substantial reduction in tariff duties, the most important since the Civil War. The average rate of duty is estimated at slightly under 30 per cent, a level more nearly such as prevailed in the period 1816–60. The most important reductions were putting wool on the free list, with a corresponding reduction on manufactures of wool, and reducing the duty on raw sugar to 1 cent a pound March 1, 1914, with the provision that it should be free after May 1, 1916. Among other commodities put on the free list were wheat, meat, cattle, sheep, flax, hemp, iron ore, pig iron, steel ingots, blooms, slabs and rails, timber, coal, boots and shoes. Important reductions were made in the duties on many other commodities, especially on products supposed to be controlled by trusts, while the duties on luxuries were generally retained or increased. To provide in part for the resulting loss in revenue an income tax was added, thus tending to shift a considerable burden of taxation to the wealthier classes. However, the tariff still remains essentially protective in character.

Looking back over the whole history of the tariff perhaps two features stand out as the most striking: (1) At the opening of the twentieth century, when we had become a great manufacturing nation, and after nearly one hundred years of protection, our tariff duties had advanced to the highest point known, about twice as high as when the manufactures of the country were in their infancy. (2) The method of constructing the tariff schedules and the changes in our tariffs have been very largely determined by the fluctuations in the fiscal needs of the government or by the ups and downs and general exigencies of politics rather than by any careful study of the changing conditions in the different industries. The tariff has been unscientific in the extreme.

172. PRINCIPAL SOURCES OF CUSTOMS REVENUE, 1912[1]

Breadstuffs	$4,993,694
Chemicals, drugs and dyes	7,033,225
Cotton, manufactures of	35,253,111
Earthen, stone and china ware	5,876,725
Fibers, vegetable, and textile grasses and manufactures of	22,698,044
Fruits and nuts	8,407,965
Iron and steel, manufactures of	8,837,875
Silk, manufactures of	14,096,458
Spirits, wines, malt liquors and other beverages	17,328,055
Sugar	50,603,314
Tobacco and manufactures of	25,571,508
Vegetables	6,642,322
Wool and manufactures of	27,053,480
All other sources	76,925,896
Total customs revenue	$311,321,672

173. THE BALANCE OF TRADE AND PROTECTION

(*a*) A MERCANTILIST POINT OF VIEW[2]

But for the reader's ease, I shall first sum up what has been said as short as possible, in the following propositions:

1. That the prosperity and happiness of this kingdom depend very much upon our foreign trade.

2. That we have no gold or silver of our own growth; that all we have is imported from abroad in exchange for the product and manufactures of our own country.

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[1] Compiled from the *Statistical Abstract of the United States*, 1912, pp. 671–75.

[For a diagrammatic statement of the importance of customs revenue in the total ordinary receipts of the United States government, see Selection 245.—EDITORS.]

[2] Adapted from Charles King, *The British Merchant*, 3d edition, 1748; I, 18–35, 144–45.

[This book, originally written in England in 1713, was occasioned by the violent discussion aroused in that country over the two treaties of commerce with Portugal and with France, proposed at the close of the wars ended by the Treaty of Utrecht, and designed to give greater freedom of trade between England and those countries. At that period the balance of trade in the commerce between England and Portugal was favorable to England but it was unfavorable in the commerce between England and France. Hence British mercantilist writers favored the treaty with Portugal but were bitterly opposed to the treaty with France.—EDITORS.]

3. That we gain gold and silver from those countries which do not sell us so great a value of manufactures as they take from us; for in this case the balance must be paid in money.

4. That we must pay a balance in money to such countries as sell more manufactures than they take from us; and that the capital stock of bullion is diminished by such a commerce, unless the goods we import from an over-balancing country shall be re-exported.

5. That we are most enriched by those countries which pay us the greatest sums upon the balance; and most impoverished by those which carry off the greatest balance from us.

6. That the trade of that country which contributes most to the employment and subsistence of our people, and to the improvement of our lands, is the most valuable.

7. That the trade which lessens most the subsistence of our people, and the value of our lands, is the most detrimental to the nation.

8. That that country which does not sell us so many manufactures as it buys from us, contributes the whole value of the balance to the employment and subsistence of our people, and to the product of our lands.

9. That the country which sells us more than it buys from us, takes the whole value of the balance from the subsistence of our people and the landed interest.

10. That therefore the balance which is either paid or received by means of our trade with any particular country, is one certain medium to judge of the value of our trade: That is, every particular trade contributes so much to the subsistence of our people and the improvement of our lands, as the balance it pays to us for the greater quantity of manufactures we sell than buy; and it deducts so much from both for the greater quantity of manufactures we buy than sell, as the balance we are to pay.

11. And lastly, that every country which takes off our finished manufactures, and returns us unwrought materials to be manufactured here, contributes so far to the employment and subsistence of our people as the cost of manufacturing those materials.

Many other maxims might be offered, but these are sufficient to try the value of every particular trade; or all may be still summed up in fewer words, thus: That trade which makes money flow in most plentifully upon us, enables our people to subsist themselves better by their labor, raises the value of our lands. and occasions our rents to be better paid, must always be reckoned the best trade; for these are the only rules by which it is possible to state and determine the value of any particular trade, or of the general trade of the whole nation. I shall illustrate this by a few instances.

If we export any value of our manufactures for the consumption of a foreign nation, and import thence no goods at all for our own consumption, it is certain the whole price of our own manufactures exported must be paid to us in money, and that all the money paid to us is our clear gain.

The merchant perhaps does not get 20 per cent by the goods he sends abroad; yet if he sells his goods for the very price he paid for them, and brings back the whole price in money, and not in goods, to his native country, the merchant in this case gets nothing, but his country gets clear the whole value of the goods.

To make this intelligible, if I ask any man what is the gain of the day-laborer or manufacturer, he will answer me, that it is just so much as he earns by his work for the subsistence of himself and his family. His whole wages are his gain.

If his whole time is taken up in working for the consumption of the Portuguese; for instance, if his whole wages are paid him by that nation, he gains from Portugal the whole value of his yearly labor. And the same thing must be said of the Portuguese manufacturer that works for the consumption of the English nation; he clears his whole wages from this kingdom.

But still the question is, how much of these wages is gained or lost to the one nation or the other?

It is certain, that all that the consumption of Portugal pays to the English laborers, more than is paid by the consumption of England to the laborers of Portugal, is clear gain to England and so much loss to Portugal. And therefore if the wages of English people for labor bestowed on the corn, lead, tin, woolen, and other manufactures exported to Portugal, should amount to £800,000 per an. and the wages of the Portuguese for their labor bestowed upon the wine, oil, fruit, and other products of that country imported hither for the consumption of our people, should amount to no more than £200,000 per an., it is clear that in the article of wages for labor, setting the wages of one people against those of the other, we gain by the balance £600,000 per an.

The next question is, what is gained or lost by the exchange of the product of the land between both nations?

And here another question will arise, what is gained by the gentleman or landholder? I believe every man will give me this answer, that he gets just so much as is given for the product of the land, clear of the charge of labor that is bestowed upon it; and whoever is the consumer, whether this or a foreign nation, pays the gentleman so much of his rent.

If the corn, lead, tin, woolen, or other manufactures of this kingdom, are exported to Portugal for the consumption of that nation, it is certain that Portugal pays the English landholder the whole rent, or in other words, the whole price which is paid upon account of rent for those goods; which is indeed the whole price that is paid for them, deducting the wages given for the labor bestowed upon them. The same thing must be said of England; the landholder of Portugal gets just so great a part of his rent from England, as is paid by the consumption of this nation to the rents of that kingdom.

How much then is gained or lost to the landholders of either nation? All that is given for the mere product of the English lands by the Portuguese, more than is given for the mere product of Portugal by the English, is so much gain to England, and so much loss to Portugal.

Suppose then that the product of the lands of England (clear of the wages of the laborers) exported to Portugal, should amount to £400,000 per an. and that the product of Portugal, clear of labor, imported into England, should amount to no more than £100,000 per an. the difference is £300,000 per an. The English landholders gain so much yearly from Portugal, and Portugal loses so much to this nation.

The last thing is the gain of the merchant. The merchant gains all that part of the price of his goods in which his sale exceeds his purchase; and this difference of the price is paid by the consumer. If England is the consumer, the merchant gains this difference in England, but England gets nothing by her consumption. But if Portugal is the consumer of the goods exported by the English merchant, he gains the whole difference from Portugal. And so in like manner does the Portuguese merchant get from England the whole difference of the price upon all goods which he buys in Portugal, and sells to this kingdom.

Suppose then that our English merchants buy here the product of our lands manufactured by the labor of our people, at the cost of £1,200,000 per an. and sell the same to Portugal for £1,300,000 per an. our English merchants get from that country £100,000 per an. On the other hand, if the merchants in Portugal buy there their oil, wine, fruit, etc. at the cost of £300,000 per an. and sell the same to England for £325,000 per an. their gain from England is no more than £25,000 per an. So that in this very article of the merchant's gain, England would get clear £75,000 per an. from Portugal; and so much would be yearly lost to that nation.

For my own part, I know no other way of estimating the profit and loss of trade between two nations. All that the labor of the people, the product of the lands, and the gain of the merchants in one nation, exceed in value those in the other, is so much gain to the first, and so much loss to the second. This is plain and obvious to every person, even of the meanest capacity.

To illustrate this further, in trying the worth of any particular trade by the exports and imports between two nations.

If we have at any time imported from France (for our own consumption) a greater value of goods and merchandise than we exported for the consumption of that country, it is certain that one way or other we paid the balance in money; and whether we paid this by exporting bullion out of England, or by drawing bullion from other nations indebted to us into France, the case is the very same; that whole balance was so much loss to this kingdom; so much we may be said to have lost by our French commerce.

But the nature of goods and merchandise exported and imported between the two nations, ought also to be considered.

If we paid this balance in money for manufactures which must needs have interfered with our own; that is, which must have hindered the sale of such a value of our manufactures at the same market, and did not open a new vent for them at any other, it is manifest that both our landholders and our laborers must have been deprived by means of this commerce of all those sums of money which were paid away for the product and manufactures of France; as also, that that country had been so much enriched by the impoverishment of this kingdom.

It is not to be expected that our own people will ever buy the product or manufactures of their own country, if the like are to be had cheaper from foreign nations. Therefore those of foreign nations are either prohibited or loaded with high duties, that our own may have no rival to contend with among ourselves. And I make no doubt that the use of foreign manufactures in England will always be discouraged by our legislators for this very reason, that our own consumption, which pays annually the sum of 42 millions to our own product and manufactures, that is to the rents of our lands and the labor of our people, may never pay any part of the above mentioned sum to the rents and labor of foreign nations; or at least that sufficient care will be always taken that the consumption of every other nation shall pay as much to the rents and labor of Great Britain, as Great Britain shall pay to any such other nation. And there is no way of doing this but by prohibitions or high duties, to prevent our being overbalanced by their importations.

(*b*) AN AMERICAN ARGUMENT[1]

There can be no question—it does not argue common-sense in any man to get up and maintain to the contrary upon the great principles of political economy—there can be no question, I say, that it is best for any country under heaven to produce the articles it manufactures and to manufacture the articles it produces, as far as possible. Any government that is a buyer of the products of a foreign government when it can produce those articles itself, must be engaged in a miserable business to the extent to which it does it. As has been said by the friend who preceded me, the true wealth of a nation depends upon the products of its soil and the labor that is bestowed in fitting those products for the use of man, and every dollar which we pay to encourage the labor of other countries, to stimulate the production of other countries, is so much taken from our own, and so much taken from the actual wealth of the country.

174. A HOME-MARKET ARGUMENT[2]

The food supply is increasing more rapidly than population. In the period of 39 years, ending in 1889, population in the United States has increased 175 per cent; corn 257 per cent; wheat 389 per cent; oats 411 per cent; swine 66 per cent. The necessity for increasing our home market for corn and oats is pressing. Importation of wool diminishes the home market and the increase of our flocks enlarges it. If sheep flocks are increasing, our wheat product will be reduced, our home demand for corn and oats increased, and we will have a home market for our cereals. Every bushel of grain exported carries away fertility; every pound of wool imported supplants so much grain, etc., which we might have grown. The home market for wool is the only home market for farm products never supplied.

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[1] *Transactions National Association of Wool Manufacturers*, Proceedings of the Syracuse Convention (1865), pp. 5–6.

[2] Based upon William Lawrence, *Memorial of the Ohio Wool Growers' Association*, in Senate Miscellaneous Documents, No. 35, 53d Congress, 2d Session, pp. 150–52.

Nearly $100,000,000 annually sent out of the United States for foreign wool, including that imported in manufactures, should be kept at home and go into the pockets of American farmers in exchange for American wool and corn and oats, thereby increasing the demand for these cereals. And this money is sent to countries that take substantially nothing from us but gold. When we import wool we have it as an element of perishable wealth, and foreign countries take for it and have as an element of permanent wealth the gold which we should have kept in this country and paid to American woolgrowers. When we produce all needed wools we have them and also the gold which pays for them for our American citizens, a double source of wealth.

175. IMPROVED TRANSPORTATION AND PROTECTION

(*a*) AN AMERICAN CAMPAIGN ARGUMENT[1]

Originally the danger to domestic industries from foreign competition was much less than at the present time. Merchandise brought into any country from abroad must first bear the cost of transportation, and in times when the cost of transportation was great, and when goods were necessarily transported by animal power and by sailing vessels only, this high cost of carriage was of itself a protection to the domestic producer in any country. True, the producer of merchandise just across the border line of a country had an enormous advantage over the producer a thousand or five thousand miles distant, but as only a small proportion of the producers were located near to the border line such countries did not find it necessary to establish high tariffs to protect their own producers or manufacturers. The distance which foreign goods must be carried and the cost of transportation over that distance alone serve to create a protective wall for the domestic producer. In late years these conditions of distance and transportation have absolutely changed. The railroad and the modern steamship have reduced the cost of transportation compared with that in the early part or even in the middle of the century just ended; while the telegraph and the telephone have annihilated distance and time. Merchandise from the interior of Europe, ordered by telephone, telegraph, and cable, transported from its place of production by trolley road, canalized rivers, or boats operated by steam or electricity, or by railway to the Atlantic, and thence by great steamships, built to carry hundreds of carloads at a single voyage, across the ocean, and again transported to the interior of the United States by the cheapest land transportation ever known to man, can be placed at the door of the consumer in the Mississippi Valley for a very small percentage of the cost of transporting the same at the middle of the last century. As a result the protection which distance and the cost of transportation afforded to the local producer has disappeared, and without a protective tariff, established by the Government, he has as his direct competitor the low-priced labor of any and every part of the world.

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[1] From the *Republican Campaign Text-Book*, 1908, pp. 106–7.

(*b*) A SPANISH ANALOGY[1]

Some years ago I happened to be at Madrid, and went to the Cortes. The subject of debate was a proposed treaty with Portugal for improving the navigation of the Douro. One of the deputies rose and said: "If the navigation of the Douro is improved in the way now proposed, the traffic will be carried on at less expense. The grain of Portugal will, in consequence, be sold in the markets of Castile at a lower price, and will become a formidable rival to our *national industry*. I oppose the project, unless, indeed, our ministers will undertake to raise the tariff of customs to the extent required to re-establish the equilibrium." The Assembly found the argument unanswerable.

Three months afterward I was at Lisbon. The same question was discussed in the Senate. A noble hidalgo made a speech: "Mr. President," he said, "this project is absurd. You place guards, at great expense, along the banks of the Douro to prevent Portugal being invaded by Castilian grain; and at the same time you propose, also at great expense, to facilitate that invasion. This is a piece of inconsistency to which I cannot assent. Let us leave the Douro to our children, as it has come to us from our fathers."

Afterward, when the subject of improving the navigation of the Garonne was discussed, I remembered the arguments of the Iberian orators, and I said to myself: If the Toulouse deputies were as good economists as the Spanish deputies, and the representatives of Bordeaux as acute logicians as those of Oporto, assuredly they would leave the Garonne

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[1] From Frédéric Bastiat, *Sophismes économiques*, translated by P. J. Stirling, p. 99–100. G. P. Putnam's Sons, 1909.

> Dormir au bruit flatteur de son onde naissante;

for the *canalization* of the Garonne would favor the *invasion* of Toulouse products, to the prejudice of Bordeaux, and the *inundation* of Bordeaux products would do the same thing to the detriment of Toulouse.

176. TWO PROPOSALS FOR INCREASING THE DEMAND FOR LABOR[1]

I. A CHINESE EXPEDIENT

There were in China two large towns, called *Tchin* and *Tchan*. A magnificent canal united them. The Emperor thought fit to order enormous blocks of stone to be thrown into it for the purpose of rendering it useless.

On seeing this, Kouang, his first mandarin, said to him: "Son of Heaven! this is a mistake."

To which the Emperor replied: "Kouang, you talk nonsense."

I give you only the substance of their conversation.

At the end of three months the Celestial Emperor sent again for the mandarin, and said to him: "Kouang, behold!"

And Kouang opened his eyes, and looked.

And he saw at some distance from the canal a multitude of men *at work*. Some were excavating, others were filling up hollows, leveling and paving. And the mandarin, who was very cultivated, said to himself: They are making a highway.

When other three months had elapsed the Emperor sent again for Kouang, and said to him: "Look!"

And Kouang looked.

And he saw the road completed, and from one end of it to the other he saw here and there inns for travelers erected. Crowds of pedestrians, carts, palanquins, came and went, and innumerable Chinese, overcome with fatigue, carried backward and forward heavy burdens from *Tchin* to *Tchan*, and from *Tchan* to *Tchin*. And Kouang said to himself: It is the destruction of the canal which gives employment to these poor people. But the idea never struck him that their labor was simply *diverted* from other employments.

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[1] From Frédéric Bastiat, *Sophismes économiques*, translated by P. J. Stirling pp. 216–20 and 162–64. G. P. Putnam's Sons, 1909.

Three months more passed, and the Emperor said to Kouang: "Look!"

And Kouang looked.

And he saw that the hostelries were full of travelers, and that to supply their wants there were grouped around them butchers' and bakers' stalls, shops for the sale of edible birds' nests. He also saw that, the Artisans having need of clothing, there had settled among them tailors, shoemakers, and those who sold parasols and fans; and as they could not sleep in the open air, even in the Celestial Empire, there were also masons, carpenters, and slaters. Then there were officers of police, judges, fakirs; in a word, a town with its suburbs had risen round each hostelry.

And the Emperor asked Kouang what he thought of all this.

And Kouang said that he never could have imagined that the destruction of a canal could have provided employment for so many people; for the thought never struck him that this was not employment created but labor *diverted* from other employments, and that men would have eaten and drank in passing along the canal as well as in passing along the highroad.

II. A FRENCH PETITION TO THE KING

SIRE: When we observe these free trade advocates boldly disseminating their doctrines, and maintaining that the right of buying and selling is implied in the right of property (as has been urged by M. Billault in the true style of a special pleader), we may be permitted to feel serious alarm as to the fate of our *national labor;* for what would Frenchmen make of their heads and their hands were they free?

The administration which you have honored with your confidence has turned its attention to this grave state of things, and has sought in its wisdom to discover a species of *protection* which may be substituted for that which appears to be getting out of repute. They propose a law *to prohibit your faithful subjects from using their right hands.*

Sire, we beseech you not to do us the injustice of supposing that we have adopted lightly and without due deliberation a measure which at first sight may appear somewhat whimsical. A profound study of the *system of protection* has taught us this syllogism, upon which the whole doctrine reposes: The more men work, the richer they become; the more difficulties there are to be overcome, the more work; *ergo,* the more difficulties there are to be overcome, the richer they become.

In fact, what is protection, if it is not an ingenious application of this reasoning—reasoning so close and conclusive as to balk the subtlety of M. Billault himself?

Let us personify the country, and regard it as a collective being with thirty millions of mouths, and, as a natural consequence with sixty millions of hands. Here is a man who makes a French clock, which he can exchange in Belgium for ten hundredweights of iron. But we tell him to make the iron himself. He replies: "I cannot, it would occupy too much of my time; I should produce only five hundredweights of iron during the time I am occupied in making a clock." Utopian dreamer, we reply, that is the very reason why we forbid you to make the clock, and order you to make the iron. Don't you see we are providing employment for you?

Sire, it cannot have escaped your sagacity that this is exactly the same thing in effect as if we were to say to the country, *Work with your left hand and not with the right.*

To create obstacles in order to furnish labor with an opportunity of developing itself was the principle of the old system of *restriction*, and it is the principle likewise of the new system which is now being inaugurated. Sire, to regulate industry in this way is not to innovate, but to persevere.

As regards the efficiency of the measure, it is incontestable. It is difficult, much more difficult than one would suppose, to do with the left hand what we have been accustomed to do with the right. You will be convinced of this, Sire, if you will condescend to make trial of our system in a process which must be familiar to you; as, for example, in shuffling a pack of cards. For this reason, we flatter ourselves that we are opening to labor an unlimited career.

When workmen in all departments of industry are thus confined to the use of the left hand, we may figure to ourselves, Sire, the immense number of people that will be wanted to supply the present consumption, assuming it to continue invariable, as we always do when we compare two different systems of production with one another. So prodigious a demand for manual labor cannot fail to induce a great rise of wages, and pauperism will disappear as if by enchantment.

Sire, your paternal heart will rejoice to think that this new law of ours will extend its benefits to that interesting part of the community whose destinies engage all your solicitude. What is the present destiny of women in France? The bolder and more hardy sex drives them insensibly out of every department of industry.

But the moment your new law comes into operation, the moment right hands are amputated or tied up, the face of everything will be changed. Twenty times, thirty times, more embroiderers, polishers, laundresses, seamstresses, milliners, shirtmakers will not be sufficient to supply the wants of the kingdom, always assuming, as before, the consumption to be the same.

This assumption may very likely be disputed by some cold theorists, for dress and everything else will then be dearer. The same thing may be said of the iron which we extract from our own mines, compared with the iron we could obtain in exchange for our wines. This argument, therefore, does not tell more against left-handed men than against *protection*, for this very dearness is the effect and the sign of an excess of work and exertion, which is precisely the basis upon which, in both cases, we contend that the prosperity of the working classes is founded.

Yes, we can make a touching picture of the prosperity of the millinery business. What movement! What activity! What life! Every dress will occupy a hundred fingers, instead of ten. No young woman will be idle, and we have no need, Sire, to indicate to your perspicacity the moral consequences of this great revolution. Not only will there be more young women employed, but each of them will earn more, for they will be unable to supply the demand; and if competition shall again show itself, it will not be among the seamstresses who make the dresses, but among the fine ladies who wear them.

You must see then, Sire, that our proposal is not only in strict conformity with the economic traditions of the government, but it is in itself essentially moral and popular.

To appreciate its effects, let us suppose the law passed and in operation—let us transport ourselves in imagination into the future—and assume the new system to have been in operation for twenty years. Idleness is banished from the country; ease and concord, contentment and morality, have, with employment, been introduced into every family—no more poverty, no more vice. The left hand being very awkward at all work, employment will be abundant, and the remuneration adequate. Everything is arranged on this footing, and the work shops in consequence are full. If, in such circumstances, Sir, utopian dreamers were all at once to agitate for the right hand being again set free, would they not throw the whole country into alarm? Would such a pretended reform not overturn the whole existing state of things? Then our system must be good, since it could not be put an end to without universal suffering.

And yet we confess we have the melancholy presentiment (so great is human perversity) that some day there will be formed an association for right-hand freedom.

177. THE LAW OF COMPARATIVE COSTS AND THE WORKING OF THE TARIFF[1]

No one can expect to have a well-grounded opinion on the protective controversy who is not trained in general economic reasoning; and any conclusions he may reach on general reasoning cannot be proved by facts and figures. If his general conclusions are once firmly fixed in his mind, he can simply illustrate them by facts derived from history and statistics.

There are, however, some aspects of the tariff question on which the inductive and historical mode of inquiry is more helpful. The protective policy of the United States has had unexpected successes and surprising failures. By successes here I mean that sometimes the duties have brought about a considerable development of the protected industry; while by failures, I would describe those cases in which there has been an absence of such development. It need not be repeated that success or failure in this sense does not necessarily imply advantage or disadvantage to the community at large: it indicates only whether the immediate object in view has been attained by the protective measures. There have been curious differences in the extent to which this primary object of protection has been attained; and the results have varied, not only in different branches of manufactures, but, what is more surprising, in different sorts of agricultural production. The history of some cases of this kind throws light at least on some important questions bearing on the protective controversy. It helps in ascertaining what would probably have been the general character of our industries if there had been no protection; whether, for example, without high duties the United States would be an exclusively agricultural country. It serves, moreover, to illustrate, if not to prove, a familiar economic principle—the doctrine that comparative costs determine the range of international trade.

[1] Adapted from F. W. Taussig, *The Tariff History of the United States*, 4th ed. pp. 364–409. G. P. Putnam's Sons, 1899.

The first case to which I will turn is that of the production of flax fiber. In general, agricultural commodities are exported from the United States on a large scale, and protective duties on them, while they have been frequently imposed, are nominal: agricultural products would not be imported in any event. But with flax we find the reverse of the usual conditions. Flax has been imported into this country for generations, and import duties have had no perceptible effect in checking importation or in stimulating the production of flax at home. . . . . The small quantity of flax now raised is of coarse quality, quite unsuited to the making of linen cloth. Meanwhile, importation continues steadily. The imports of flax fiber were in 1886, 3,700 tons, and in 1890 about 5,500 tons. The act of 1890 made a further attempt to check imports and stimulate home production by again increasing the duty, but the same causes which made earlier efforts of this sort futile remain in force to check this one.

What, now, is the explanation of a state of things so different from that which prevails as to most agricultural products? We get hints towards a solution of the problem by examining the conditions under which flax is raised in foreign countries. In the first place, flax is eminently a product of intensive culture, grown in countries like Belgium and France, whose agriculture is typical of intensive culture. A laborious and careful preparation of the ground is required. Several ploughings and harrowings are called for; for the best flax, the land is trenched by spade. The ground must be carefully weeded, and "in Belgium the weeding is done by hand, when the plants are a few inches high, by women and children who crawl about on their hands and knees, with cloths to protect them from the ground, working always towards the wind, so that the plants may be at once blown back to an upright position." From twenty-five to thirty tons of manure per acre are ploughed in, and, in addition, liquid manure is applied. The harvest is as laborious as the preparation. The plants are pulled by the roots; for cutting by machine or by scythe spoils the fiber, and, moreover, the parts of the plant nearest the ground, which is lost by cutting, contains the best fiber.

The process of preparing flax for market, however, is by no means completed when it has been taken from the ground. It must first be rotted, then scutched, finally hackled. Rotting consists in immersing the plants in water, and thereby loosening the coarse external covering from the inner fiber which is to be converted into linen.

In the United States, this has been done for both flax and hemp by "dew-rotting"—that is, leaving the plants exposed to the dew in the fields; but this method, while simple and easy, makes poor fiber, Fiber of good quality can only be made by immersion for between five and ten days in water, which becomes foul and noisome from the decomposition of the plants. "The flax is then removed from the pools, and in this operation too much care cannot be used. Hooks or pitchforks injure the fiber, and the bundles must be handed out by a man who stands in the now disgusting pool."

These bundles, when dried, are ready for the next operation, scutching, by which the inner woody pith of the plant is removed. The ancient method of doing this was simply to beat the stalks with clubs, and the reader of Tourguéneff's novels need not be told that this method is still used in Russia. Elsewhere, machines are in use, but only to a slight extent. Machines for breaking up the pith seem easy to get, and are simple enough; in Ireland, this part of the process is carried out by putting the stalks under cart-wheels. But scutching proper, the removal of the broken pith, is generally done by hand "by beating the fiber with a blunt knife while it is held over the edge of a sharpened board." Finally, after scutching, comes hackling, which corresponds to the carding or combing of wool and cotton, and which leaves the clean flax fiber ready for spinning. This again was done universally by hand at the time when the Commission of 1865 reported; and Mr. Whitman tells us it is still done "mostly by hand even in large mills." The nature of the fiber apparently prevents that use of machinery for which wool and cotton are so wonderfully adapted.

Hemp and flax are much alike, and what has been said in regard to flax applies in the main to hemp. Hemp of good quality must also be heavily manured, should be pulled or cut close to the ground, water-rotted, scutched, and hackled. Bounties on hemp as well as on flax were given in colonial times, and duties have been imposed on it without interruption since the formation of the Union; yet hemp of the finer sort has never been raised, and has always been imported in considerable quantities.

It should be noted, however, that the preceding remarks apply only to the cultivation of flax and hemp for the purpose of obtaining good fiber. Flax is grown in large quantities in the United States for the seed, and hemp of coarse quality is grown in considerable quantities. Flax for seed need not be heavily manured, nor need the seed be thickly sown; weeding is unnecessary; the plants may be cut by scythe or machine; the seeds are easily and quickly separated from the fiber. Seed is produced plentifully under these conditions, and is sold to oil mills; but the flax straw becomes coarse and almost useless, and is generally burnt on the fields or sold for a trifle. Hemp cultivated in the same way, and then dew-rotted, yields a coarse fiber, suitable for bagging and other coarse fabrics; and it has been grown for such uses in considerable quantities, mainly in Kentucky. In recent years, however, jute and other tropical substitutes have displaced it even for these purposes, and its cultivation seems to be unprofitable.

The characteristics of the branches of agriculture which we have been considering are, obviously, intensive cultivation and little use of machinery. The American farmer spreads his labor and capital thin over a large surface of land; and he uses machinery and labor-saving devices vastly more than the peasant or the landed proprietor of continental Europe. It is generally implied, in discussions of our international trade, that the extent and fertility of our soil explain our great agricultural exports. This is true, as far as it goes. But it should be qualified by adding that the products for which we have the most decided advantage and which we export in largest quantity are those suited not only for extensive cultivation, but suited also for the liberal use of agricultural machinery. Wheat and corn are the readiest examples of such products, and it is mainly for growing and harvesting these that we have achieved our triumphs in agricultural machinery. Flax and hemp, on the other hand, require intensive culture, and admit of little aid from labor-saving devices. The causes, therefore, of the agricultural competition of America, which has had so great an effect on the economic history of the last twenty years, are to be found not only in physical conditions of soil and climate, but also in those moral and intellectual differences which lead the American to use better tools and more machinery than his European competitor. . . . .

If greater use of machinery, more intelligent use of time, and steadier exertion were of equal advantage in all branches of agriculture, they would not affect international trade; but they tell more in some branches than in others. The American farmer tends to confine his agriculture to those products for which they tell, and the country imports agricultural products for which they do not tell. The rule does not, of course, hold good in all branches of agriculture.

Peculiar advantages of soil and climate suffice in some cases, of which cotton and tobacco are the most obvious and important, to give a superiority little affected by greater efficiency or intelligence. But the most striking features in our agricultural situation seem to be explained by this sort of reasoning; not indeed by this solely, but by this taken together with the effects of a wide extent of virgin and fertile soil.

We may now turn to another set of cases, in manufacturing industry, where a similarly uneven working of protection has shown itself. The first case of this kind is in the silk manufacture, which I will examine with some detail.

The manufacture of silk goods in the United States is in the main of recent date, having come into being since the Civil War. To this general statement, however, there are two exceptions. Sewing-silk has been made, in one way or another, for over a century. For fifty years after the Revolution, its manufacture was carried on, chiefly in Connecticut, as a household industry. About 1829, machinery began to be invented, was continually improved, and made the industry a manufacture in the modern sense of the term. In 1852, a new step was taken in the production of machine-twist for the sewing-machines which were coming into general use. A very large development of this branch of the industry took place, and the Census of 1860 reported the value of sewing-silk made to be no less than $3,600,000. The second branch of the silk manufacture which sprang up before the Civil War, was the making of fringes and trimmings. We have little information as to its early history, but in 1860 its products were found by the census to be worth $2,800,000. Neither the manufacture of sewing-silk nor that of trimmings received during this period any special encouragement from import duties. Sewing-silk had been admitted between 1833 and 1841 at a duty which gradually went down from 40 to 20 per cent. Other silk manufactures were admitted free of duty. The tariff act of 1842 imposed higher specific duties for a few years, but the act of 1846 imposed a duty of 30 per cent on sewing-silk and one of 25 per cent on other silk manufactures. These rates were reduced to 24 and 19 per cent respectively in 1857. Notwithstanding these moderate duties—moderate, at least, in comparison with those of later years—there was a marked growth in the manufacture of sewing-silk and of trimmings between 1850 and 1860. Other branches of the silk manufacture, however, did not exist. Almost all silk goods were obtained by importation from abroad. The duty on them was a simple revenue duty; and no question arose as to domestic production or protective duties.

After the Civil War, the situation changed completely. During the war an increase in the silk duties was a natural resource for securing greater revenue; and in 1864 the general duty was 60 per cent. Like so many other of the duties imposed at that time, it remained substantially unchanged after the war closed. For more than a generation the protective policy has been applied vigorously and continuously to this industry. The high duty has brought into existence a considerable and varied silk manufacture. The effect in this case, unlike that of some other duties, was not intentional. The high duties on silks were imposed during the war with little thought of protection and without solicitation from domestic producers. In this respect they differ from avowedly protective duties, like those on wool and woolens. But they have been followed by more marked effects; they have created an entirely new industry. The development of the silk manufacture was comparatively slow before 1870. It proceeded more rapidly in the years of activity preceding 1873. A new stimulus seems to have been given by the Centennial Exposition of 1876. The manufacture of trimmings on a wider scale was first undertaken; then that of ribbons came; soon afterward that of brocaded and colored silks and satins, followed by that of plain piece-goods. The manufacture of silk handkerchiefs received a remarkable impulse from the Exposition. At the present time, the domestic silk products are at least equal in value to the imported. Many kinds of silk goods are no longer imported. This is the case not only with sewing-silks and trimmings, but with many articles of which the domestic production did not begin before the war, such as handkerchiefs and most kinds of ribbons. Other articles, again, are made little or not at all, especially the finest piece-goods. Between these classes comes the debatable ground, on which foreign and domestic silks compete. Here may be placed most dress silks, but the domestic producers in recent years have been steadily increasing their hold on goods of this sort, and now supply much the greater part of their consumption.

This brief sketch of the history of the silk manufacture shows how different has been its development from that of other textile industries. The manufactures of cotton and wool attained a large growth and a firm position long before the Civil War, while that of silks is, in the main, of very recent date. Silks are still imported more largely than other textile goods. The explanation of these facts must be sought in the character and processes of the industry.

The peculiarities of the silk manufacture are the result of the qualities of silk fiber. Raw silk is not made in the United States. Spasmodic attempts to encourage its production have been made, by bounties during the colonial period, by premiums in the early years of our national existence. At the present time there is a feeble attempt to establish it in California. The hopelessness of these attempts has permitted raw silk to remain on the free list, and the entire supply is obtained by importation. The raw silk so imported differs in marked ways from cotton and wool. In the first place, it corresponds not so much to raw cotton as to cotton carded and spun. It has been reeled from the cocoons, perhaps rereeled; and on the character of the reeling depends mainly the quality of the fiber.

[There follows an account of the many delicate and laborious operations, where machine methods cannot be used, which are necessary to prepare the thread for use in the loom.]

Silk fiber is much less adapted to the complicated and rapidly moving machinery of textile manufactures than are cotton and wool. It is not surprising to learn that four-fifths of the looms in the city of Lyons are still hand-looms, and that Crefeld, the chief seat of the silk manufacture in Germany, is a town of household operatives. The necessities of the situation compel the silk manufacturers of this country to attempt the substitution of machinery for hand labor, and the use of more elaborate and more efficient methods. Such a change alone will enable the manufacture of an article as easily transportable as silks to hold its own side by side with the agricultural industries in which by far the greater part of our population is engaged. The endeavor shows itself not only in the concentration of the manufacture, in the invention and increasing application of labor-saving machinery, in the use of power-looms instead of hand looms, but also in the strenuous efforts to secure raw silk of more even and uniform quality. The preference of American manufacturers for the best grades of raw silk, and their willingness to pay good prices for it, are not the result, as one might infer from some allusions to it, of any special virtue on their part. Their policy is due simply to the necessities of the situation. The more uniform the material, the more can machinery be used; the greater the use of machinery, the better the chance of the American producer.

Hence we find that the various branches of the silk manufacture have been put in a firm position in proportion to the possibility of using machinery. Sewing-silk, the earliest branch and the most firmly established, is the product of American inventions. It is not surprising that machinery should be readily adapted to the comparatively simple processes of twisting several fibers together, and then winding and spooling them—which are the essential processes in making sewing-silk and machine-silk. Another illustration of the same tendency, and a most instructive one, is in the successful manufacture of "spun-silk" goods. These are made from waste silk; that is, from the fibers of damaged or incomplete cocoons, from those which are thrown aside as unfit for reeling in the filatures, and from the tangled waste left in the earlier operations of the silk mill. These fibers are carded and spun by methods very similar to those used for cotton, and they produce "a material of such perfect uniformity that the thread to be made from it can be produced with absolute mathematical accuracy of any required size." The silks made from it were the original "American silks"; they are made with abundant use of machinery; they are cheap, durable, and good. But, unfortunately, they lack a certain luster, an agreeable softness, and a peculiar rustling sound much prized by our better-halves. We are told that they are "hard." Those qualities in the fiber which make silks agreeable to their chief consumers seem to be lost in the processes of carding or rapid spinning, and spun-silk goods fail to displace the more insinuating articles which come from the reel. Yet their consumption has steadily increased. By mixture with reeled silk, and by other improvements, their quality has been made more agreeable. They are said to be specially well adapted for silk prints, and in the production of these the characteristics of American manufactures are again illustrated. "In Europe, printing is done with little blocks, a few inches square, which are slowly and more or less imperfectly used in handwork. Here, ingenious machinery is employed, printing many colors at once. A machine for this purpose requires a special engine to drive it, in order to have it under absolutely accurate control as to speed, pressure, and registry. Patterns that cannot be perfectly matched by hand may be turned out faultlessly by such machinery."

The answers to the questions presented by our sketch of the history of the silk manufacture now suggest themselves. The nature of the silk fiber was an obstacle to that extensive use of labor-saving machinery which is characteristic of American industry. The field is not promising for the ingenuity and inventiveness which give American manufactures their distinctive advantages. . . . .

The progress of the silk manufacture in recent years has been extraordinary. Ten or fifteen years ago, American dress silks were hardly heard of, and such as existed were of harsh and poor quality. At present, much the larger part of the dress silks which are used are of American make, and they are inferior in quality to none but the choicest imported goods. The dress silks which continue to be imported are largely figured silks. Of such goods, no great quantity of any one piece can be made with profit; there are not likely to be many purchasers whose tastes will be hit by any particular pattern. It does not pay to make goods of this sort on the power-loom, which, like all expensive machinery, is profitable only when it works continuously and turns out large quantities at a time. The hand-loom turns out less at a time, and is more easily transferred to a new pattern. Figured silks are therefore more often made in the old way, and for that reason, again, are largely imported. Probably the same conditions hold good, in greater or less degree, of other imported silk goods. The very finest qualities of dress goods, such as require much individual attention from the workman—laces, some sorts of embroideries, velvets, and goods which are half silk, half cotton, or wool—make up the greater part of the importations. But with dress goods, as with handkerchiefs, ribbons, upholstery silks, the American manufacturers have wellnigh driven out their foreign competitors. They would continue to hold their own, even if duties were considerably reduced.

What the position of the silk manufacture might be if duties were entirely swept away, it is impossible to say. Some branches of the manufacture would probably hold their own, while others would disappear. Should there continue in the future a progress such as has undoubtedly been made in recent years in the American silk manufacture, it may happen in the end that most sorts of silks will be made here as cheaply as abroad, and that the abolition of protective duties would affect the silk manufacture as little as it would now affect the bulk of the cotton manufacture. If this proves to be the case, we shall have an example, and a striking one, of the successful application of protection to young industries. It is unlikely that any attempts at silk-making would have been made here but for the high duties of the war, and such progress as the manufacture has made may be fairly ascribed to the stimulus of protection. It remains to be seen whether this progress will be continued so far as to attain the true end of protection to young industries—the supply of the commodity at a price below that of the foreign article. The nature of the fiber makes it improbable that there will ever be any such complete application of machinery as in the manufacture of cotton and wool; but no man can say it will not be done, for the march of invention brings many surprises. The question turns, however, on this: unless there is continued application of machinery and continued invention of labor-saving processes, such as will make labor here more efficient than abroad, then, so long as our general economic conditions bear their present relations to those of Europe, we cannot expect the growth of a varied and independent silk manufacture.

The manufacture of cutlery supplies another illustration of the uneven development of industries apparently similar. The duty on cutlery for many years was 50 per cent; yet there is a large and regular importation of pocket-knives. On the other hand, table cutlery, subject to the same duty, is practically not imported at all. There is a slight importation of table-knives made by certain English firms, whose products some well-to-do people, from habit or prejudice, persist in preferring; but the bulk of the table-knives used are of American make, and are as cheap as goods of the same quality are abroad. The industry being concentrated in a few large establishments, there is a strong temptation to combinations; and every few years there is a combination of the American manufacturers, which advances prices, keeps them high for a while, and then goes to pieces. But the knives are made as cheaply as they are in England and other countries, and are usually sold at prices as low. Pocket-knives and razors, however, although made to a considerable extent, cannot be made so cheaply as in England and Germany, and continue to be imported in the face of the duty. The explanation is again that machinery can be applied to the one much more than to the other. Table-knives are made in large quantities of a single pattern; they have comparatively few pieces; the blades need no very careful grinding—and grinding is still done largely by hand. A pocket-knife is a more complex thing; the pieces need to be put together by hand, they must be made to fit neatly, the blades must be carefully ground. If the various parts of a pocket-knife could be struck off by machinery, in hundreds or thousands, perfect, and complete, and then easily put together, pocket-knives would doubtless be made in this country with complete success. Watches can be made after that fashion and afford a striking example of American enterprise, ingenuity, and success. But pocket-knives need to be of numberless patterns. The jobbers and retailers, who presumably know the likings of consumers, want few knives of any one style, and want new patterns every season. Obviously, production on a small scale and with little machinery, in the German fashion, accommodates itself to such a capricious demand much more readily than the American plan of using large plant, expensive machinery, and an inflexible process. That the American manufacturers have not succeeded in getting command of the domestic market is indicated by the fact that in 1890 and 1897 they asked, and in the tariff acts of those years obtained, a marked increase in the duties.

Most smaller articles of hardware, however, seem to afford favorable opportunities for the inventive talents of American workmen and business men. All sorts of complicated articles—door-knobs, locks, hinges, house hardware and household utensils, spades, axes, agricultural implements, tools of all sorts—are not only made cheaply and successfully at home, but, in spite of the higher price of the materials of which they are made, are regularly exported in large quantities. Where a massive kind of production is called for, a huge plant, a steady routine, a rigid economy of materials, the organization rather than the saving of labor, the English in general excel. This was probably one cause of the commanding position they held so long as the great producers of the crude forms of iron; though much was also due to the great advantage of having rich supplies of coal very near the iron ore. In manufactures of a more delicate and refined character, if I may use such adjectives in this connection, the Americans excel. Where the nature of the material or of the product gives opportunity for the deft use of labor-saving devices, the ingenious adaptation of a tool to just the use desired, the constant application of new inventions, American manufacturers are likely to hold their own, tariff or no tariff.

To the present writer, it seems clear that the phases of our economic history which have been examined in the preceding pages, can be explained at bottom only on the theory of comparative costs, which, as he ventures to assert even at the risk of being thought magniloquent, sounds the depths of the international trade of the United States. The reason why the American farmer does not produce flax fiber is not to be found in any obstacles from climate or physical conditions. His labor would yield as much flax, absolutely, as that of the European cultivator. He simply finds that his labor yields more in other branches of agriculture. Silks, earthenware, windowglass, continue to be imported, not because of any inferior productiveness of American labor in making them; it is because of a lack of that superiority which existed in other directions.

Both in manufactures and agriculture account must be taken of moral and intellectual as well as of physical causes of a comparative advantage. . . . . Adam Smith shrewdly perceived that the causes of the advantages one country has over another are not all of the same kind; but he pointed out with truth that, given the advantages, they determine the course of trade. The nature and the cause of an advantage become material only when we begin to inquire whether it is likely to persist indefinitely, and whether it can be affected by legislation. Obviously, a comparative advantage, which rests not only on physical causes, but on differences in skill, knowledge of the arts, mechanical training, qualities of character and intelligence, may be influenced, within limits, by a stimulus in the way of premium or protection. The argument for protection to young industries applies only under conditions of this latter sort. Given those conditions, it may apply more widely than English economists have been disposed to grant. Protection to young industries, which Mill believed to be of positive advantage only in a young country in the earlier stages of growth, may have had occasional and unexpected successes even within the last thirty years. The history of the silk manufacture illustrates the possible turn of events; and the application of protection in the United States has been so sweeping since the Civil War that this case, while by no means typical of the usual effects, probably does not stand alone. But such exceptions serve here, as they do in all scientific investigations, to bring out the foundation of a general rule rather than to modify it. In the present case, they suggest a more careful analysis of the causes of comparative advantages in different countries, but do not affect the doctrine that these advantages determine the sort of trade and division of labor that will take place between them. Such phenomena as have been described in the preceding pages still reduce themselves in the last analysis, to illustrations of the doctrine of comparative costs.

XIV. RENT

178. THE ORIGIN OF AGRICULTURAL RENT[1]

There are various problems of economics, particularly some connected with taxation, the solution of which depends on a proper understanding of the causes and conditions through which rent is brought into existence. Further, the continued reappearance in current treatises of certain defects of statement which characterized the earlier expositions of the true doctrine, make almost necessary a careful restatement of that doctrine with especial reference to the defects alluded to.

And, first, we must remind the student that teachers of economics, with few exceptions, use the term rent more narrowly than is common with the general public. By the latter, rent is thought of as a payment made for the privilege of enjoying the use of any material object, a piece of land, a house, a boat, or anything you please. As used by most economists, on the other hand, rent means only a payment made for the use of *land*—that land, further, being conceived as unmodified by human art, or at least modified only in certain very fundamental, and substantially unalterable, ways. Thus, when I pay $350 a year for the use of a house and lot, $120, perhaps, will be conceived as paid for the use of the lot, while $230 is paid for the use of the house; in which case only the $120 is true rent, the $230 being more properly called hire and consisting of interest, profit, wages of management, and a fund for the maintenance of the capital involved. In short, rent—economic rent—is a sum paid for the use of a *natural* factor, while hire is paid for *artificial*, *produced* factors. Doubtless one would often find it difficult, sometimes impossible, to distinguish these two things sharply and accurately. But, in the main, they are commonly cut apart with a fair degree of precision by the automatic working of the laws of price. For example, it is almost certain that, of the total tax collected from the owner of a house and lot, one portion is really paid by him, while another portion is in the end taken from the tenant in the shape of higher rent; and, what is more significant for our purpose, it is also quite certain that the dividing line between these two parts corresponds pretty closely to the line which separates that portion of the total value of the place which constitutes the value of the lot, from that other portion which constitutes the value of the house.

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[1] From F. M. Taylor, *Readings in Economics*, pp. 181–91. Privately published, 1907.

So much for the meaning of rent in economics; now for its *origin*. Speaking broadly, rent comes into existence exactly like the value of any other thing the quantity of which is absolutely fixed; that is, it comes into existence because the thing paid for—the use of land—has a marginal utility. In other words, if land of a given grade bears rent, it is certain that society has a use for every piece belonging to that grade—that that piece, among all pieces of the grade in question, which is put to the least important use is after all put to some use. No piece can be spared. The grade in general has marginal utility, importance, significance. But, while in general rent, like similar cases of value where the stock of the particular form of wealth is absolutely fixed, owes its origin to the marginal utility of that for which rent is paid, it is usual in this case to go deeper, to inquire into the more ultimate causes of rent, particularly agricultural rent. Accordingly, the classic theory as to the origin of rent is a theory as to the deeper phases of the process whereby agricultural rent comes into existence.

In presenting the theory, it is perhaps best to begin with the hypothesis that all the land is of one grade—i.e., can furnish produce (wheat we will say) at substantially one cost—and that its productive efficiency is absolutely fixed—it can raise, say, 30 bushels of wheat at a cost of 30 cents per bushel, no more and no less. Such a hypothesis is, of course, in the highest degree unreal, but will serve us best in bringing out the essential cause of rent. After this is done, we will change the hypothesis into closer accord with facts and show how the same cause still operates to produce rent. So, then, let us imagine ourselves to be dealing with the small, completely isolated island of classical convention. On that island there are 1,000 acres of wheat land, each acre of which can produce 30 bushels, no more and no less, at a cost of just 30 cents per bushel, not counting any charge for the use of land. If all the land is used, the output will then be 30,00c bushels costing $9,000.

Such being the purely technical conditions, let us now study the economics of the case. Let us suppose that at a certain time the demand for wheat at 30 cents is only 2,000 bushels, while it falls to 1,900 bushels at 31 cents, 1,850 at 32 cents. 1,800 at 33 cents, and so on.

Under these conditions, could there be any rent? No; for, since the possible output of wheat is much greater than the demand at any price as high as cost, most of the land will not be used at all, and the potential competition of the owners of such land will hinder the owners of the land under cultivation from exacting any payment for the use of their land. Again, under the conditions supposed, what will be the price of wheat? Answer: it will be just thirty cents. It cannot be lower; for in that case wheat would not be produced at all. It cannot be higher; for, it being possible at that cost to furnish more than is demanded at that price or higher, the competition of producers will hold price down to that figure. Finally, these two conclusions will still hold so long as demand at 30 cents is anything under 30,000 bushels, say 5,000, or 10,000, or 20,000, or anything up to 29,999.

But change slightly the conditions. Suppose that the demand increases, so that 31,000 bushels are wanted at 30 cents, 30,000 at 31 cents, 29,000 at 32 cents, and so on. Under these conditions price, plainly, will advance to 31 cents; for only 30,000 bushels can be produced and they are all wanted at 31 cents. But, since cost is only 30 cents, this new price will give farmers a surplus over ordinary returns to industry of 1 cent a bushel or 30 cents an acre. But this surplus will naturally invite producers who in other lines are getting merely the usual returns of industry to offer to pay the land owner something for the right to use the land. The present tenant will raise the offer; the outsiders will come back with a higher bid; and so on till the competition of the two has caused substantially the whole thirty cents to be turned over to the land owner. *The surplus thus turned over is rent.*[1]

Looking back over this case, we see that the immediate cause of the rent surplus is the appearance of a price in excess of the cost of production. But the cause of this higher price, and so the more ultimate cause of rent, is to be found in the fact that *the demand for wheat at a price higher than cost is at least equal to the whole possible output;* or, put the other end to, in the fact that the possible output is no more than equal to the demand at some price above cost.[1] And, with slight change, these statements will explain the origin of rent in any possible case.

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[1] The above explanation has assumed that land owner and farmer are different persons. This, of course, may not be the case. The land owner himself may work the land. But such a hypothesis does not alter the result. The fact that, under the conditions set forth, price inevitably rises above cost of production brings into existence a surplus. This surplus is first received by the farmer, and it *remains* with the farmer if he is also land owner; while, if he is only a tenant, he is driven by the free working of competition to turn over that surplus to the one who is the owner.

We have seen how rent originates in the very simple, but very unreal, case furnished by our first hypothesis. Let us now change the hypothesis so as to bring it a step nearer to the facts of life. To do this, we will suppose that the wheat land of our island, instead of being all of one grade, is of four grades, though as before the output of each acre in each grade is absolutely fixed. Thus, we will assume that there are 100 acres which will produce each 30 bushels at a cost per bushel of 30 cents, 200 acres which will produce each a little under 26 bushels at a cost per bushel of 35 cents, 300 acres which will produce each 22½ bushels at a cost per bushel of 40 cents, and 400 acres which will produce each 20 bushels at a cost of 45 cents per bushel. In each case, greater expenditure will not increase output at all, while smaller expenditure will produce no output.

When, now, would rent appear, under these new conditions? If the demand for wheat were limited to 2,000 bushels, then, as in the previous case, there would be no rent; since to produce that much wheat would require only two-thirds of the 100 acres of best land, leaving the other third, as also all poorer lands, idle, and the competition of the idle 33⅓ acres of best land would shut out any charge for the use of the 66⅔ acres actually under cultivation. In like manner, the price would be, as before, just equal to cost, 30 cents. Manifestly the same propositions would be true, were demand 2,100 bushels, or 2,200, or 2, 300, or anything less than 3000. But suppose, now, that the demand schedule becomes 3,100 bushels at 30 cents, 3,000 at 31 cents, 2,900 at 32 cents, and so on. At once price must rise to 31 cents; for the whole output which farmers can afford to raise so long as price is under 35 cents, is wanted at 31 cents. But a price of 31 cents gives a surplus over cost of 1 cent per bushel or 30 cents per acre on the best land; and this surplus, as in the former case, will be driven into the hands of land owners by the competition of possible tenants; that is, rent will now come into existence.

What, now, is the explanation of rent in this case? Substantially the same as before. The immediate cause is a rising of price above cost of production on the rent-bearing land. But the cause of that rising of price, i.e., the more ultimate cause of rent, is the fact that the demand at some price above cost is at least equal to possible output on the best land, or, turned about, that the output *of the best grade of land* is not greater than the demand at some price above cost. In short, it is the limited stock and limited capacity, not this time of all land, but *of land of the best grade*, as compared with the demand for wheat, which causes rent. Land being of various grades, a scarcity of the best land makes itself felt in raising price and starting rent even though land as a whole cannot be said to be scarce. In such a case, the existence of rent might be said to depend in a way on the fact that lands were of different grades. But the particular implication (in that statement) on which rent depends is this, that *not all the lands are of the best grade*, rather than this, that there are inferior as well as superior grades.

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[1] A more common but less precise statement would be this: The ultimate cause of rent, in a case like that supposed, would be found in that fact that *the demand for wheat at the cost price exceeded the whole possible output*, or the whole possible output was smaller than demand at the cost price. This method of putting such cases assumes—which doubtless is commonly true—that a demand in excess of output at *one* price means a demand *at some higher price equal to* output.

The above shows how, in the hypothetical case under consideration, rent would *come into existence*. But there is another phase of the matter which deserves consideration. Let us suppose the demand schedule for wheat to advance by successive steps till it reads as follows: 3,000 wanted at 36 cents, 3,100 at 35 cents, 3,200 at 34 cents, and so on. What will now happen? At first sight it might seem that price would now become 36 cents; since 3,000 bushels, the whole product of the best land, is now wanted at 36 cents. But a new element has come in. According to the original hypothesis, there are 200 acres which can furnish each 26 bushels of wheat at a cost of 35 cents. But, by this time, price will have reached 35 cents, for 3,100 bushels are wanted at that price; consequently farmers can profitably work the 35 cent land and will of course begin to do so. But, since 5,200 bushels can be furnished off these second grade lands, the 3,100 bushels wanted at 35 cents can easily be supplied at this price. Price, therefore, will stop at 35 cents, instead of going to 36. Further, this would be the case, i.e., price would remain stationary at 35 cents, even were demand to increase so that there were wanted at 35 cents 3,500 bushels or 4,000 or 5,000 or any number short of 3,000 plus 5,200, i.e., 8,200. But, if price remains stationary at 35 cents throughout all these changes in demand, then obviously the surplus over cost will also remain stationary, and therefore rent also will remain stationary. In short, the cultivation of the inferior lands acts to check rent—the existence of inferior land is not a condition on which the arising of rent depends—as is often said—

but rather a condition on which the keeping of rent within bounds depends.

In the hypothesis which has just been considered, we had already restored one of those two important facts of the real world which, as will be remembered, were purposely dropped out of our first hypothesis. Let us now restore the second of those two facts. Let us suppose that the possible output of each acre of land, instead of being absolutely fixed, varies in some degree with the amount of expenditure. Let us suppose, further, that with an expenditure of $9, each acre of land reaches the point of diminishing returns. Beyond this, increase in expenditure will for a time secure an increase in output but one less than proportionate to the increase in expenditure. Thus, suppose that, while $9 spent on the best land yields 30 bushels, $12 would yield 38 bushels; $15, 44 bushels; and $18, 47 bushels; after which no increase is possible. Similarly for the second grade of land, while $9 spent on it yields 26 bushels, $12 would yield 32 bushels; $15, 34 bushels; and $18, 38 bushels; after which no increase could be secured. And so on with the other grades of land. Under these conditions, as a little computation would show, when price reached 37 cents, output could be increased 800 bushels from the best land; when price reached 50 cents, output could be increased 600 bushels from first grade land and 1,200 bushels from second grade; when price reached 75 cents, output could be increased 800 bushels from second grade land and 1,200 from third grade land; and so on.

What, now, will be the effect of these new conditions? Let us suppose the demand schedule to have advanced till it reads as follows: 8,000 bushels wanted at 39 cents; 8,500, at 38 cents; 9,000 at 37 cents; 9,500, at 36 cents; and so on. Under our former hypothesis—that the productivity of each grade of land was absolutely fixed—this demand schedule combined with the output schedule would give us a price of 38 cents. It could not be above 38 cents; since this would cut demand down to at least 8,000, while 8,200 at least could be furnished for 35 cents. It could not be below 38 cents; since at that figure 8,500 bushels would be wanted and only 8,200 could be furnished, and so the competition of the unsuccessful buyers would hold it at that point. But, while under the first hypothesis the new demand schedule would give us a price of 38 cents, under the second hypothesis it would give a price of only 37 cents. For, under this second hypothesis, when price reaches 37 cents we can, through the more intensive cultivation of the best land, increase output by 800 bushels, making a possible total at that figure of 9,000 bushels—3,800 from the best land and 5,200 from the second best; and 9,000 bushels just satisfies the demand at 37 cents and so hinders a rise to 38 cents. Thus, the new hypothesis has hindered the price from rising as high as it would have risen under the old. But anything which hinders price from rising thereby hinders rent from rising. That is, the more intensive cultivation of soils already in use checks the rise of rent. The principle that even after the stage of highest net efficiency has been reached output can be increased though at increasing cost per unit, furnishes a condition under which rent may be checked. In other words, the so-called law of diminishing returns—which might better be named the law of *increasable returns at diminishing rate*—in one of its phases furnishes a possible check on the growth of rent; and from this standpoint takes its place along with the inferior soils which, as we saw above, play a similar part.

The discussion just preceding has shown how the law of diminishing returns acts to check the growth of rent. We can hardly leave the matter without remarking emphatically that, looked at in another of its phases, this same law is a *sine qua non* of rent. Because the returns from the same piece of land are *increasable*, therefore a check on rent is possible. But, because the possible increase is *at a diminishing rate*, therefore, before the increase which checks rent can take place, price must rise above cost on the old plan of cultivation, and it is this rising which causes rent. If output could be increased indefinitely without any falling off in the rate, there could never be any rent; for supply would always keep pace with demand at cost price, i.e., without any rising of price above cost. We *could* have rent, were returns absolutely fixed; we *do* have rent with returns fixed by an elastic limit, i.e., increasable but at a diminishing rate; but we *could not* have rent, were returns indefinitely increasable without any falling off in the rate.

We have set forth the process by which rent would come into existence under each of three different hypotheses, each being modified so as to bring it nearer to actual conditions than its predecessor. As a matter of fact, even in its third form that hypothesis would, in many respects, show not a few differences from those conditions. One of these differences gives us a case which is of sufficient importance to deserve special consideration. In introducing the condition of different grades of land, it was assumed that these grades varied in productivity by considerable intervals. The best produced 30 bushels per acre; the second best, 26 bushels; the third, 22½ bushels, and so on. But there can be little doubt that, in the actual world, lands vary in productivity by much slighter differences than these. Still keeping as near as possible to our original figures, the best land yields, let us say, 30 bushels per acre; the second grade, 29; the third, 28; and so on. (Very likely even these differences are too large.) Does this new condition compel us to alter our explanation of rent? Not in any essential feature. To simplify matters, let us ignore the output per acre, and simply assume that, without pushing cultivation beyond the point of highest net efficiency, wheat can be raised on the different grades according to the following schedule: on the best, 3,000 bushels at a cost of 30 cents per bushel; on the second grade, 5,000 bushels at a cost of 31 cents; on the third grade, 7,000 bushels at a cost of 32 cents a bushel; and so on—it being assumed also that people do not take account of differences smaller than a cent. How, now, would rent come into existence? Our previous answers fit easily enough. As soon as demand at some price above 30 cents equals or exceeds 3,000 bushels—the output from the best land—price will rise above 30 cents, thus giving a surplus over cost which will be retained by the farmer if he is also land owner but which, if he is only a tenant, will be driven by competition from his hands into those of the land owner. But what part is played by the new possibilities of production at 31 cents, 32 cents, and so on? Just such a part as was formerly played by the possibility of production at 35 cents. Since the output can be increased 5,000 bushels just as soon as a price of 31 cents is established, then, although the demand schedule may be one which under the former hypothesis would have raised price to 32 or 33 or 34 or 35 cents and so raised rent to corresponding heights, price may now be checked at 31 cents, and so rent kept at 1 cent a bushel or 30 cents an acre. Thus, suppose the demand schedule to be: 3,500 bushels at 35 cents; 4,000 at 34 cents; 4,500 at 33 cents; 5,000 at 32 cents; 5,500 at 31 cents; and so on. Under our former hypothesis, price would promptly rise to 35 cents, giving a rent on the best land of $1.50 per acre. But, under the new hypothesis, price could not rise above 31 cents, since at that price 8,000 bushels can be furnished and only 5,500 are wanted; and rent could, in consequence, reach only 30 cents per acre.[1]

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[1] The conspicuous difference between the earlier case and the one just considered is to be found in the fact that, in the latter, cost of production plays a part in determining price and so in determining rent, not merely at *special stages*, as in the former case, but *all the time*. Thus, under the former hypothesis, whenever costs on the first and second grade lands are respectively 30 and 35

The gist of the above discussion may be set forth in the following propositions. (1) Rent in general comes into existence when and because the demand for agricultural products at some price higher than cost on the best land—said land being cultivated up to the point of highest net efficiency—equals or exceeds the output of said land so cultivated. (2) Rent on any particular grade of land comes into existence when the demand for agricultural products at some price higher than cost on the grade of land under consideration, equals or exceeds the output on all land having a cost which is smaller than said price, the lands in all cases being cultivated to the point of highest net efficiency. (3) The detailed process whereby rent comes into existence is as follows: demand at some price higher than cost becomes at least as great as possible output of best land cultivated to point of diminishing returns; this causes price to rise above cost; this gives to the farmer a surplus over ordinary returns; the existence of this surplus leads to the competition of possible tenants in trying to secure the use of the land by paying a price therefor; and this competition goes on till the whole surplus is turned over to the land owner as rent. (4) Bringing into cultivation inferior soils tends to check the rise of rent. (5) Cultivating more intensively soils already in use tends to check the rise of rent.

179. RENT DIAGRAMS

The accompanying diagrams are intended to illustrate the rents due to cultivating, in a given community, different pieces of land which offer unequal advantages to the cultivator, through differences of fertility, of location, or of both.

In Diagram I the case is presented from the viewpoint of increasing cost of production. In the plane figure *YOXB*, units of product from the best piece of land are measured along *OX*. *OA* represents the cost of the first unit produced; *XB* represents the cost of the final

cents, after price has reached 31 cents and before it has reached 34 cents, it is temporarily emancipated from the influence of cost of production altogether. During that time, price is solely a question of the marginal utility of the possible output of the best land; and the precise amount of such marginal utility is not at all affected by cost. But, when, as in the later hypothesis, the second grade land can furnish wheat at 31 cents, third grade land at 32 cents, and so on, then marginal utility itself can be determined only as marginal cost is also determined, and so, of course, price can be determined only as marginal cost is determined. In fact during much of this interval price might temporarily ignore marginal utility altogether and follow marginal cost only.

or marginal unit, and each point on the ascending curve AB represents, by its height above OX, the cost of some intermediate unit of product. The area $OXBA$ shows the total cost of the product on this piece of land; the area $OXBY$ indicates the total selling-price of this product, and the area ABY indicates the amount of rent.

Similar explanations apply to the analogous figures $Y'O'X'B'$ and $Y''O''X''B''$. $O'A'$ is greater than OA, and $O''A''$ is greater than $O'A'$, indicating that on inferior lands the initial cost of production is greater than on the best land; but the marginal costs $X'B'$ and $X''B''$ are equal to the marginal cost XB on the best land. The line DC may be interpreted as the extreme or limiting form of a figure like $YOXB$, and if so interpreted shows the case of no-rent land on which but one unit is produced, and on which initial cost coincides with marginal cost.

Diagram I

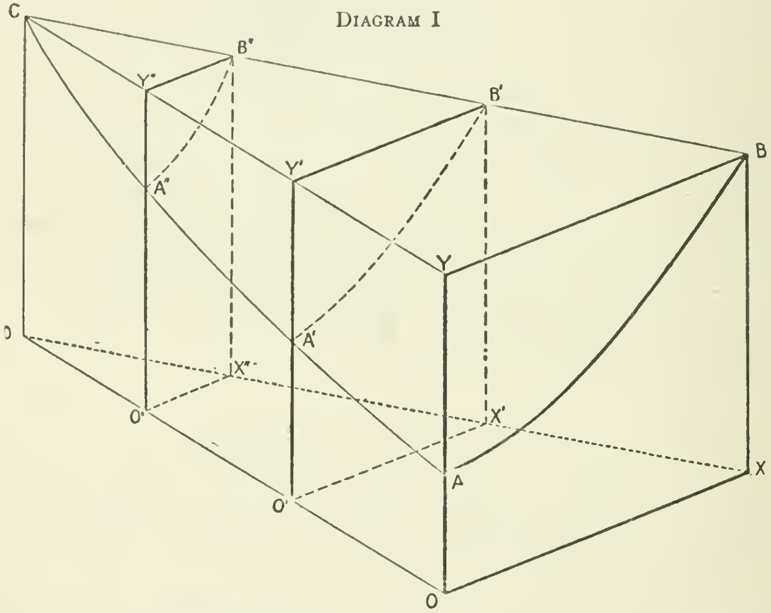
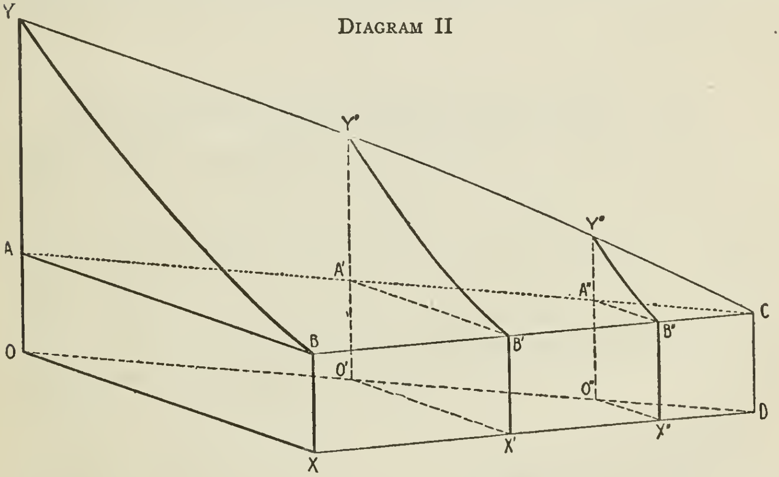


Diagram I as a whole may be regarded as a solid figure made up of an indefinite number of figures like $YOXB$, $Y'O'X'B'$, etc., packed side by side, each corresponding to a separate piece of the land under consideration. Then the constant altitude of the line CB above the line DX indicates the constant marginal cost on all grades of land. The varying altitude of the line AC above the line OD shows the different costs of the initial units of product raised on lands of different advantages. The volume of the solid figure *DOXBCY* represents the total price of the product of all the pieces of land. Of this total, the portion represented by *DOXBCA* is cost of production, and the portion represented by *CABY* is total rent.

Diagram II presents the same general subject from the viewpoint of diminishing returns. Here, in the plane figure *YOXB*, units of labor and capital applied to the best piece of land are measured along *OX*. *OY* represents the return to the first dose of labor and capital; *XB* represents the return to the marginal dose, and the descending curve *YB* represents the phenomenon of diminishing returns to successive intermediate doses. The area *YOXB* shows the total product of this piece of land; the area *AOXB* shows what would have been the product if no unit of labor and capital had yielded more than did the marginal dose. The difference, *YAB*, indicates the amount of rent.

Diagram II



Similar explanations apply to the analogous figures *Y'O'X'B'* and *Y''O''X''B''*. *Y'O'* is less than *YO*, and *Y''O''* is less than *Y'O'*, indicating that on inferior lands the initial return is less than on the best land; but the return to the marginal dose of labor and capital (*XB*, *X'B'*, *X''B''*, and, in the limiting case, *DC*) is the same for any grade of land.

In Diagram II as a whole, the constant altitude of the line *BC* above the line *XD* indicates the constant marginal productivity of labor and capital on all kinds of land. The varying altitude of the line

YC above the line OD shows the different degrees of initial productivity of lands of different quality. The volume of the solid figure $OXDCYB$ represents the total product of all the pieces of land. Of this total, an amount represented by the volume $OXDCAB$ would have been produced if no labor and capital had yielded more than did the marginal doses on the several pieces of land. The difference, represented by the volume $ABCY$, is total rent.

NOTE.—In strictness, if Diagrams I and II refer to the same set of conditions, and if the curves AB, $A'B'$, and $A''B''$ of Diagram I are concave to the base of the figure, as drawn, the curves YB, $Y'B'$, and $Y''B''$ of Diagram II should be convex to the base. But in drawing the diagrams it has seemed best, despite the inconsistency, to use in each the more familiar concave curve, as it is employed in most texts.—EDITORS.

180. SOME FACTORS AFFECTING LAND VALUES[1]

The total value of a city's site is broadly based on population and wealth, the physical city being the reflex of the total social activities of its inhabitants. Whatever the type of city, growth consists of movement away from the point of origin, and is of two kinds; central, or in all directions, and axial, or along the water-courses, railroads and turnpikes which form the framework of cities. Modern rapid transit stimulates axial growth, producing star-shaped cities, whose modification in shape comes chiefly from topographical faults.

The factors distributing values over the city's area by attracting or repulsing various utilities, are, in the case of residences, absence of nuisances, good approach, favorable transportation facilities, moderate elevation, and parks; in the case of retail shops, passing street traffic, with a tendency towards proximity to their customers' residences; in the case of retail wholesalers and light manufacturing, proximity to the retail stores which are their customers; in the case of heavy wholesaling or manufacturing, proximity to transportation; and in the case of public or semi-public buildings, for historical reasons, proximity to the old business center; the land that is finally left being filled in with mingled cheap utilities, parasites of the stronger utilities, which give a low earning power to land otherwise valueless.

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[1] Adapted from Richard M. Hurd, *Principles of City Land Values*, *passim* (The Record and Guide, 1903), and from the article by the same author in the *Yale Review* for August, 1902.

The basis of residence values is social and not economic—even though the land goes to the highest bidder—the rich selecting the locations which please them, those of moderate means living as near by as possible, and so on down the scale of wealth, the poorest workmen taking the final leavings, either adjacent to such nuisances as factories, railroads, docks, etc., or far out of the city. Certain features appear to attract the wealthy in selecting their residence district, among these being nearness to parks, a good approach from the business center, not too near nor yet too far, a moderate elevation if obtainable, favorable transportation facilities, despite the fact that the rich ride in their own carriages and automobiles, and above all absence of nuisances. Having selected a district the wealthy make it their own by erecting handsome residences, making good street improvements, restricting against nuisances, and finally and of chief importance, living there themselves, the value of residence land varying directly according to the social standing of its occupants. The main consideration in the individual selection of a residence location is the desire to live among one's friends or among those whom one desires to have for friends; for which reason there will be as many residence neighborhoods in a city as there are social strata. In securing a home in a good residence section, a man secures safe, healthy, and attractive conditions for his family to live under, and in the smaller cities, desirable social life, these social considerations explaining the strong pressure in all cities toward the best residence sections. The contrast should be noted that business property is selected by the man from an economic standpoint, and residence property by the woman from a social standpoint. Social growth and pressure is upward from class to class, all ranks being continually recruited from below—as well as dropping members from time to time—and the ultimate aim in residence location is to be as close as possible to those of the highest social position.

Where residences contain more than one tenant, whether tenements, flats, apartments or hotels, the basis of value is economic and conforms closely to the principles governing business property. The hotels of various classes seek locations similar to the retail stores of the same classes on convenient traffic streets which advertise them. The highest-class apartment hotels seek locations on or near such traffic streets as run through or near the fashionable districts, the rents being dependent both upon fashion and on the character and service of the building. Below this grade the various classes of flats seek locations for the convenience of their tenants, tending to draw nearer and nearer to their tenants' places of business, until finally we reach tenements crowded among the factories where their occupants work.

In modern cities the main currents of business men's travel are carried by street railroads, so that the travel consists of short trips on foot converging to the street railroads, a long trip in the cars to the business center, and there short trips on foot again. In some cities where there are hills between the business and residence sections, the currents of foot travel follow a zigzag course up and down the hill, it being easier to turn corners than encounter grades. A variation may occur in the return trip where men stop at clubs, cafés, or hotel lobbies, the location of these favorite haunts causing a different route to be taken, with some resulting influence on values.

Within the business districts occur the continual interchange of visits, by means of which the business of the city is accomplished. Here, although the trips are short, the necessity for saving time leads to the gathering together of the various forms of business in special districts. In large cities the daily trips of workmen are made chiefly on foot and are widely diffused throughout the tenement districts, with small effect except that certain more convenient streets attract cheap shops.

The daily trips of women are made either for shopping, calling, or driving. Here, as in men's trips, the travel consists of short trips on foot to the street car lines, which carry the concentrated travel to the largest shops, where the cars are left and the women walk to the other shops. For the same reason of convenience, women's shops are crowded together in order to save time in going among them.

Transfer points, owing to concentration of daily streams of people and consequent opportunity for shops, are strategic points in a city's area, creating business subcenters, whose prospects of increasing values are limited only by the number and quality of the people likely to utilize them. As examples, note the marked effect of transfers in New York at Broadway and 34th Street, Madison Avenue and 59th Street, Lexington Avenue and 59th Street; also in New Haven at Chapel and Church streets; in Denver at 15th and Lawrence streets, and the many transfer points in the outlying districts of Chicago.

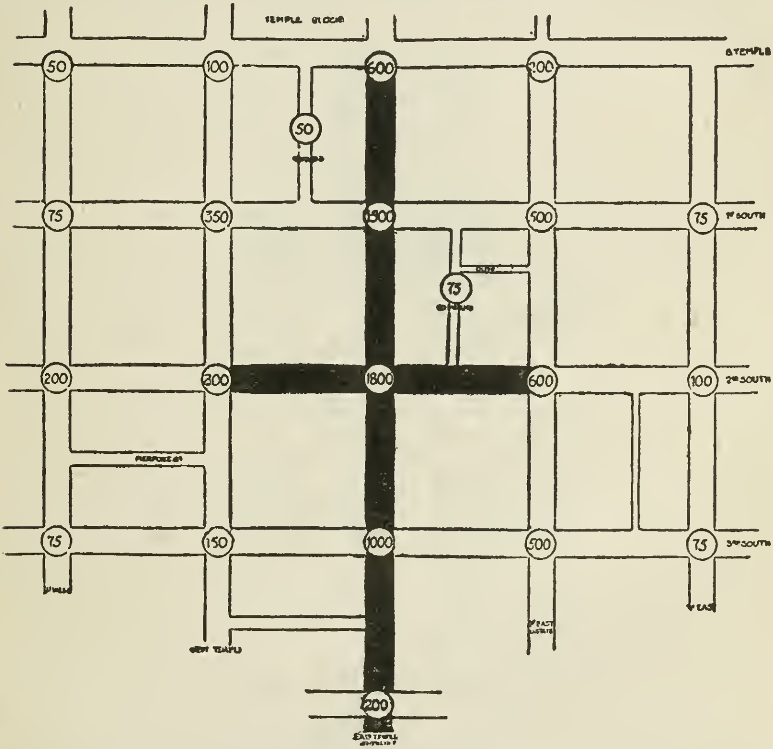
Bridges, ferries, and tunnels, which serve as additional outlets to a city, co-operate with long distance transportation facilities, and any change in their location or any competition of new bridges or tunnels by changing traffic routes cause marked shifting of values. Thus the construction of the Brooklyn Bridge by diverting traffic from the old Fulton Street ferry, and throwing it half a mile back from the river on either side, removed millions of dollars of value from the streets leading to the ferries, especially in Brooklyn.

Where a railroad runs through a business section at grade, it limits communication between the divided sections and tends to concentrate business on one side of the line. Where a railroad in a business section is carried below or above grade, its effect is minimized. In a poor residence section a railroad has but little effect, but in a high class residence section it forms a nuisance which good residences shun. Added to the noise and cinders of passing trains is the fact that the railroad attracts factories and warehouses, which are also nuisances in a residence district. In some instances the railroad travels along the line of a small creek or gully within the city, which has already kept land values down, so that the railroad has but little added effect, as with the greater part of the Belt Line in Kansas City. If the railroad is in a deep cut, its limiting effect on good residences is diminished, as in Chattanooga and St. Paul. In some cities demand for land in the good residence district is so great that the residence district is projected beyond the encircling railroad with little fall in values, as in Louisville and Richmond, where handsome residences are built adjacent to the railroad. In New York, the N.Y. Central R.R. on Park Avenue, between 42d and 56th streets, holds the high-class residences on the west side of the track, the east side of the track being ruined by absence of approach, the only communication being by the elevated foot bridges. From 56th Street north the tracks enter the tunnel and their effect is lessened, the only objection being the vent holes in Park Avenue. In all cities railroads detach great slices of city area, in which they alter utilizations and values much as important water courses do.

The display of goods is vital for shops, and in order to display goods shade is necessary; hence the side of the street which is shady during the part of the day in which women shop is normally worth from 20 per cent to 40 per cent and occasionally 100 per cent more than the sunny side of the street. The west side of streets running north and south, and the south side of streets running east and west, are shady the greater part of the year from about 12 or 1 o'clock on, permitting a display of goods without fear of fading, and rendering the sidewalk agreeable. The greater part of the purchasing in the large shops is done by women of the middle classes, whose household duties prevent them from reaching the shops until after 11 o'clock. The busiest shopping hours are from 11 o'clock to 4 o'clock, many women taking lunch either in the department stores or in restaurants nearby. The women of wealth shop usually in the morning between 11 and 2 o'clock, so that even in their case the west or south side of the street has some advantage of shade. In southern cities where shade is even more important, the relative value of the four corners of two intersecting business streets is well defined, the southwest corner being the most valuable, the southeast next, the northwest next, and finally the northeast corner. This refers only to retail shopping fronts, the corners having a different order of preference if desired for other purposes, such as hotels or office buildings. It is said that in such northern latitudes as those of St. Petersburg and Montreal the sunny side of the street is more valuable than the shady side, since it attracts the travel in the long winters. In New York some difference can be noted in the tides of foot travel according to the time of year, but since for eight or nine months of the year the climate is mild, the shops become established on the shady side of the street and whatever travel in winter changes to the sunny side is not sufficient to draw them over.

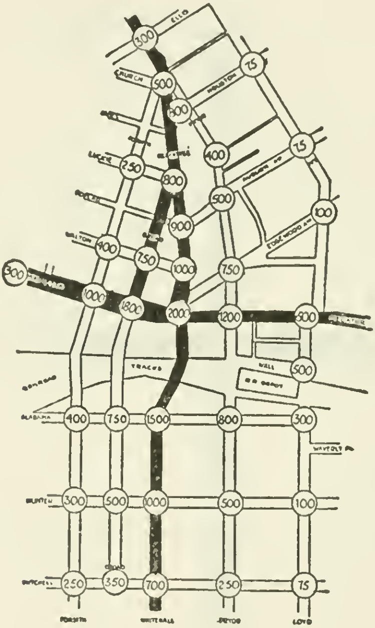
Salt Lake City (population 53,531) is located where the Mormon trail through Emigration Pass reached the valley floor of the Great Salt Lake, and was laid out to the east of the river Jordan. The first dwellings were erected on the block bounded by Third and Fourth streets south, and Second and Third streets west, but the first store was erected at the intersection of Main Street and First South, this corner being now the second in value in the city. The Mormon Temple was the center around which the early life of the city revolved, and probably the reason that Main Street has always been the principal street is because it ran from the city to the temple and to Brigham Young's tithing yard on the adjacent block.

The chief peculiarity of the original plat is the size of the blocks, which are 660 feet square, as compared with normal blocks of about 300 feet square. This results in one-fourth as many corners in Salt Lake City as in the normal city, so that the two good intersections, those of Main Street with South First and South Second streets, have an abnormal value reaching $1,800 per front foot. The further results are to concentrate business, on account of the small number of streets leading away from the center, and to remove almost all the value from a tract 400 feet square at the center of each block, since a depth of only 100 to 120 feet can be utilized. Thus we find in a distance of 300 feet a drop from $1,800 to $75 a foot, owing to the non-accessibility of the interior locations.



Business Section, Salt Lake City, Utah
(The figures in this and the following diagram indicate the value of corners, per front foot)

Atlanta (population 89,872) furnishes one of the few examples of an inland city whose site is not intersected by a water course. In its origin and growth it has been purely a railroad town, the Union Depot being practically the starting-point of the city. Two main turnpikes were laid out, Marietta and Decatur streets east and west, Peachtree and Whitehall streets north and south, whose intersection has only recently acquired the highest values in the city. The bulk of the population first located south of the railroad tracks, possibly owing to the location there of the state capitol, county courthouse, and city hall, and Whitehall Street, between Mitchell and Alabama, still remains the principal women's shopping street. The development of Peachtree Street as the one fashionable street of the city, drawing theaters, clubs, hotels, and office buildings after it, has at last moved the point of highest values from south of the railroad tracks to north of them. Residence values are high, owing partly to the monopoly of fashion held by Peachtree Street, where values vary from $200 to $100. The better streets off Peachtree Street, such as West Peachtree, Forest Avenue, Ponce de Leon, North Avenue, etc., show values running from $80 to $40; the wide differences in values for similar land being due not only to topography but also to variations in the scale of development.



Business Section, Atlanta, Ga.

181. RAILROADS AND LAND VALUES[1]

The actual increase in the value of lands, due to the construction of railroads, is controlled by so many circumstances, that an accurate estimate can only be approximated, and must in most cases fall far short of the fact. Not only are cultivated lands, and city and village lots, lying immediately upon the route affected, but the real estate in cities, hundreds and thousands of miles distant. The railroads of Ohio exert as much influence in advancing the prices of real property in the city of New York, as do the roads lying within that state. This fact will show how very imperfect every estimate must be. But taking only the farming lands of the particular district traversed by a railroad, where the influence of such a work can be more directly seen, there is no doubt that in such case the increased value is many times greater than the cost of the road. It is estimated by the intelligent president of the Nashville and Chattanooga R.R., that the increased value of a belt of land ten miles wide, lying upon each side of its line, is equal to at least $7.50 per acre, or $96,000 for every mile of road, which will cost only about $20,000 per mile. That work has already created a value in its influence upon real property alone, equal to about five times its cost. What is true of the Nashville and Chattanooga road, is equally so, probably, of the average of roads throughout the country. It is believed that the construction of the three thousand miles of railroad of Ohio will add to the value of the landed property in the state at least five times the cost of the roads, assuming this to be $60,000,000. In addition to the very rapid advance in the price of farming lands, the roads of Ohio are stimulating the growth of her cities with extraordinary rapidity, so that there is much greater probability that the above estimate will be exceeded, than not reached, by the actual fact. We are not left to estimate in this matter. In the case of the state of Massachusetts, what is conjecture in regard to the new states, has with her become a matter of history. The valuation of that state went up, from 1840 to 1850, from $290,000,000 to $580,000,000—an immense increase, and by far the greater part of it due to the numerous railroads she has constructed. This increase is in a much greater ratio to the cost of her roads, than has been estimated of those of Ohio.

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[1] From I. D. Andrews, *Report on the Trade and Commerce of the British North American Colonies* (1853), pp. 383–84. House Executive Document No. 136, 32d Congress, 2d Session.

We have considered the effect of railroads in increasing the value of property in reference only to lands devoted to agriculture; but such results do not by any means give the most forcible illustration of their use. An acre of farming land can at most be made to yield only a small annual income. An acre of coal or iron lands, on the other hand, may produce a thousand-fold more in value than the former. These deposits may be entirely valueless without a railroad. With one, every ton of ore they contain is worth one, two, three, or four dollars, as the case may be. Take for example the coal-fields of Pennsylvania. The value of the coal sent yearly from them, in all the agencies it is called upon to perform, is beyond all calculation. Upon this article are based our manufacturing establishments, and our government and merchant steamships, representing values in their various relations and ramifications, equal to thousands of millions of dollars. Without coal it is impossible to conceive the spectacle that we should have presented as a people, so entirely different would it have been from our present condition. Neither our commercial nor our manufacturing, nor, consequently, our agricultural interests, could have borne any relation whatever to their present enormous magnitude. Yet all this result has been achieved by a few railroads and canals in Pennsylvania, which have not cost over $50,000,000. With these works, coal can be brought into the New York market for about $3.50 per ton; without them, it could not have been made available either for ordinary fuel or as a motive power. So small, comparatively, are the agencies by which such immense results have been effected, that the former are completely lost sight of in the magnitude of the latter.

182. LAND VALUATION[1]

Urban economic rent is ascertained by deducting from the gross rent of land and building, first, all charges for services, such as heat, light, elevators, janitors, agents' commission for collecting rents, etc.; second, taxes, insurance, and repairs, and, finally, interest on the capital invested in the building. This interest on the cost of the building must exceed the average interest rate by an amount equal to the annual depreciation of the building, thus providing a sinking fund sufficient to replace the building at the end of its life. To make

[1] Adapted from R. M. Hurd, *Principles of City Land Values*, pp. 1–2; 124–32; 148–56. The Record and Guide, 1903.

a correct showing the building must be suited to the location and managed with ordinary ability, or the apparent economic rent will have little or no bearing on the value of the land.

The rate of capitalization, turning income into value, is based on the average interest rates of all investments and fluctuates with them, although within closer limits and more slowly. Wide differences occur in the rates of capitalization of rents from land of different uses in the same city, and smaller differences from land having the same use in different cities. Where a locality is advancing in value, capitalization rates are low, where stationary they are normal, and where declining they run very high. After the vital factor of prospective increase or decrease of value, the lesser factors are stability of rents, ease of convertibility—in part by mortgaging or in whole by selling—and character of utilization, as involving the rates of depreciation of different classes of buildings. In general, the larger the city and the higher the class of property, the greater the stability of rents, and ease of convertibility, and the lower the rate of capitalization. Differences in rent are plainly apparent, but differences in rates of capitalization are frequently overlooked, although a very large proportion of value in urban land comes from a low rate of capitalization. To illustrate; of two pieces of land yielding an economic rent of $10,000 annually, one well located and improved with office building or retail shop might sell, excluding the building, on a 4 per cent basis, or for $250,000; while the other covered with cheap tenements, might sell, excluding the buildings, on a 10 per cent basis, or for $100,000. The rate of capitalization is ascertained by figuring backwards, i.e., dividing average prices paid for similar land by the net income, which shows the interest rate which the community is satisfied to receive on such investments.

Taking as gross rents the amounts actually received and not the full rental value, from which an allowance for vacancies must be made, we may note first the great difference in the proportion of operating expenses according to the class of property, this varying from 10 per cent for one or two story brick store buildings, up to 50 per cent for office buildings or apartment houses.

Explaining this difference is the fact that in office buildings and apartment houses, from 20 per cent to 25 per cent of the rent represents the payment for services, such as light, heat, elevator, janitors, cleaning, etc. If from gross rentals all service charges are deducted, the other charges, taxes, insurance, repairs and rent collecting, approximate in percentage quite closely in all classes of property.

Average taxes vary somewhat in different cities. Taxes on individual properties in the same city vary more sharply owing to irregular assessing by tax officials. Figuring the average of a large number of American cities, taxes range from 1¼ per cent to 1½ per cent of actual value, the chief exceptions being in Washington, where taxes amount to 6–10 per cent (the U.S. government paying half the taxes), and in San Francisco, where taxes amount to 8–10 per cent (the city having no bonded debt). The chief errors of assessors come from their overestimate of external appearances and from the habit of following former assessment rolls, so that quite uniformly property which has been valuable but which is deteriorating is assessed higher than property in the line of growth and yielding larger rents.

The cost of insurance is usually so slight that it can be disregarded in making up the budget of annual expenses. Rates range from 15c. to 30c. per $100 per annum for first-class risks in the larger cities, 50c. to 75c. per $100 on first-class risks in the smaller cities, $1.00 per $100 on stores and office buildings in the smaller cities, and so on up.

Leases vary in their provisions as to payment for repairs by landlord and tenant, but if paid by the tenant the rent is proportionately reduced. Average repairs vary from one-half of 1 per cent of the value of the building per annum in the case of the highest type of fireproof buildings, 1 per cent for ordinary mercantile buildings, 2 per cent for older property or that of cheaper construction, 3 per cent to 4 per cent for old tenements, and so on up in proportion to the age, character of construction, and lack of care of the buildings.

The cost of rent collecting averages from 2½ per cent to 3 per cent of the rent receipts in the larger cities, according to the class of property, and about 5 per cent in the smaller cities, according to the class of property. Owners who are competent to manage real estate may save agents' commissions by so doing, but instances are not uncommon, especially as to large business property, where owners managing their own property lose their time and from 20 per cent to 30 per cent of the income which an expert rental agent could have obtained.

An estimated scale of proportion of total operating expenses and net rents would be as follows, the cost of services where rendered, as in office buildings, apartments and some tenements, being included in expenses:

	Expenses	Net rents
Low retail or wholesale buildings	10–25%	90–75%
Residences	20–30	80–70
Non-elevator office buildings	25–35	75–65
Tenements, non-elevator and elevator	25–45	75–55
Elevator apartments	40–55	60–45
Fireproof office buildings	40–55	60–45

It is clear that the lower the cost of the building in proportion to the value of the land, the nearer the income approaches to pure ground rent, against which the sole charge is taxes. On the other hand, the more expensive the building the higher the maintenance cost, owing both to the greater number of services rendered and to the higher standard of accommodation. Since the operating expenses of a building, whether fully or only partly occupied, vary but slightly, the larger the proportion of expenses to gross rentals the more marked will be the rise or fall of net rentals as gross rentals fluctuate. Ordinarily, expensive office buildings are properly located, the chief errors being in the erection of expensive buildings in small cities, or in poor locations in larger cities. When hard times cause a sharp drop in rents in the smaller cities, instances have been known of the upper floors of such buildings not earning sufficient rent to pay for the mere services rendered, so that it would pay for owners to close the buildings above the ground floor, even though the ground floor stores are in active demand. The danger to owners of heavy fixed charges is shown in the following table:

With percentage of expenses to gross income	If gross rents rise or fall	Then net rents rise or fall	If gross rents rise or fall	Then net rents rise or fall	If gross rents rise or fall	Then net rents rise or fall
10%	20%	22%	40%	44%	60%	66%
20	20	25	40	50	60	75
30	20	29	40	56	60	85
40	20	33	40	66	60	100
50	20	40	40	80	60	120
60	20	50	40	100	60	150

The next charge against gross rents is for interest on capital invested in the building, this being figured at the same rate as the capitalization of the ground rent, after an allowance for depreciation has been made.

The final residuum constitutes the economic or ground rent, which represents the competitive premium paid for location. Where there is no residuum of ground rent in city land it does not follow that the land has no value, but usually that the improvements are not suitable, so that the value must be estimated under a different utilization. If the improvement is a suitable one, absence of ground rent may be due to temporary drop in rentals or bad management, all city land normally yielding some ground rent.

With an established economic rent, the sole remaining factor to transform this into intrinsic value is the rate of capitalization. As capitalization rates vary with securities, Government bonds selling below a 2 per cent basis, railroad bonds and stocks on a 3½ per cent to 5 per cent basis, and industrials on a 7 per cent to 10 per cent basis, so the rates of capitalization of urban rents vary from 4 per cent for the highest class property in the largest cities, to 5 per cent and 6 per cent for second-class property in the same cities, or for first-class property in smaller cities, 7 per cent, 8 per cent, and 10 per cent for tenements in the largest cities, and 12 per cent to 15 per cent for temporary utilizations or disreputable purposes in the smaller cities. The great power of capitalization rates on values is due to the fact that for every change of 1 per cent in the rate of capitalization, values may change from twelve to twenty-five times the difference in interest. For example, a property with a net income of $10,000 would sell on an 8 per cent basis at $125,000, on a 6 per cent basis at $166,000, and on a 4 per cent basis at $250,000. The lower the capitalization rate the greater the effect of any change of values: For example, a fall from 8 per cent to 7 per cent adds but 14 per cent to the value of the property, while a fall from 5 per cent to 4 per cent adds 25 per cent to the value of the property. Moreover, as large interest rates apply to the largest properties all further fractional lowering of low interest rates results in an enormous mass of values. The marked difference between capitalization rates of high class and low class property in the same city indicates the large number of people who desire to own high class property, and the few who desire to own low class property. The reason for such preference is that with high class property, rents are more stable and easily collected, the property is more quickly and certainly convertible, it can be mortgaged at a lower rate of interest and for a larger percentage of value, the buildings depreciate much less rapidly and the prospects of increase in value are better.

That land, even of the highest type and in the largest cities, is a slow asset, is due to a number of causes, among them being the fact that land is not easily passed from hand to hand as are stocks and bonds land involves personal or directly deputed management, where stocks and bonds do not, there is no Exchange with daily quotations giving the values of land, as with stocks and bonds; and finally the value of land is influenced by many complex changing factors, whose effects are differently estimated by different people. Because land is a slow asset, convertibility, or certainty and speed in selling it, produces a high premium for the best property by lowering its capitalization rate.

To look at the problem from the individual standpoint, in attempting to state the value of any single property, the inquiry would seek first, upon what forces does the city itself depend, how permanent are they, how diversified, are they strengthening and what is the resulting index figure, to wit, the rate of increase of the city's population; next, what are the characteristics of the section of the city in which the property is located, its past history, its present stability, its future prospects; what is the central strength of the property, how near the main center of the city or the various subcenters of attraction; what is its axial strength, the quantity, quality, and regularity of the passing travel, what is the character of building on the property as to suitability, planning, physical condition, prospect of changing utility, management, convertibility, gross and net income; at what prices have surrounding property been selling, are they rising or falling, and do they suggest any factors not yet taken into account; is the property liable to be injured or benefited by changes in the building laws; is there any special enterprise or strength on the part of the owner or of surrounding owners likely to affect the property; what would be the probable effect of any inventions or improvements in transportation or the construction of buildings, and, finally, what are the general commercial conditions as affecting the earning power of tenants, actual or prospective, and financial conditions as affecting the capitalization rate.

The problem is never a simple one, being as complex as city life itself, but it is not insoluble, since the forces creating cities are governed by uniform laws, like causes producing like results, apparent exceptions being due to the influences of factors not reckoned on. The popular impression that the ability to forecast future movements of city growth points a quick way to fortune is an over estimate, since real estate movements are slow, large capital is required to handle it, carrying charges are heavy, and even though the forecast may be ultimately correct, the rate of movement is uncertain, depending on the operation of vast economic forces impossible of exact prediction.

If business expands and population increases in a city, the sum total of land values is certain to increase. All the land, however, will by no means increase in value, the great mass of medium business and residence property advancing but slowly since it supplies the wants of a large number of people of moderate earning power who cannot pay beyond a certain price. Coincident with the gradual lifting of values as population becomes more dense, decaying sections, left behind in the onward march, drop down the scale of inferior utilities and values, sometimes to the point of extinction. Such worn-out property exhibits in its dilapidations both absence of utility and public confession of that fact. If population and business become stationary the sum total of land values will decrease in proportion to the previous discounting of future growth, subsequent movements consisting of redistribution of value, as one part of the city or another, or one individual or another, flourishes or declines.

The principal causes of the redistribution of value in all cities are, increase in population and wealth, especially in causing relocation or extension of the best residence district, changes in transportation, such as new surface, elevated, or underground lines, new bridges, tunnels, ferries, and railroads, and the readjustments of new utilities in new areas harmonizing the complex contending factors.

183. CAR-FARES AND SUBURBAN SITE-VALUES[1]

If we consider the normal working-class family as containing four or five persons, as I think is reasonable, and assume a five-cent fare to carry them from their suburban homes to their work, you must add, as I calculate it, $600 to the cost of their house and lot to represent the capitalized value of one trip every working-day of the year, say 300 days for one member of that family. And if, as I think is also reasonable, we assume that on the average two of every family are wage-earners, and consequently must take that daily trip, we have at once the sum of $1,200 representing capitalized transportation expenses to add to the actual cost of the house and lot in which we propose to put them in the suburb, as against the city tenement from which we are supposed to take them, where the workers can walk to and from their place of work.

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[1] Adapted from Grosvenor Atterbury, "Garden Cities," in *Housing Problems* (Proceedings of the National Housing Association), II (1912), 107–8.

Now see what this means. I think it is fair to assume that in the neighborhood of a great city, within the five-cent radius, an hour's ride, a lot such as we consider a minimum garden city lot, say 30 feet by 100, will cost between $750 and $1,000. One may get it for less than that, but if so, he probably gets surrounding conditions which are inimical to the purposes we have in mind. You put upon a lot, which we will assume as costing when improved $1,000, a house which will cost from $3,000 to $5,000. I am speaking now of eastern cities like New York. But while the figures vary in different sections of the country, this ratio remains pretty constant, and the point I am trying to demonstrate I think holds.

In other words, we have an investment ranging anywhere from $3,500 to $6,000, and, because it is removed by a five-cent fare from the place where the wage-earner goes to his work, we must add from 20 to 35 per cent to obtain the real basis of interest charges for that property, since to live in it the family must pay a sum equaling the interest on the additional $1,200. If it becomes a ten-cent fare, this amounts to an increase of 40 to 70 per cent. If the fare is as high as fifteen or twenty cents to take the worker to his work and back the cost of the house and lot in this sense is practically doubled.

184. THE VALUE OF A CHICAGO QUARTER-ACRE, 1830-94[1]

Probably the most striking illustration ever made of the pecuniary advantages of social growth which attach to land well situated to command public benefits was presented at a dinner of the Chicago Real Estate Board, in November, 1893, by F. R. Chandler, a real estate expert of long experience, whose integrity and conservative judgment give to his statements exceptional importance. It consisted of a table showing the economic history, year by year from 1830 to 1894, of the most valuable quarter acre of land in the city of Chicago. This table is a genuine contribution to economic data.

Mr. Chandler's preparatory labors were arduous and conscientious. He first searched for the prices at which numerous valuable sites in the business center of the city had been sold since 1830; and though no single site had been transferred often enough to indicate its annual changes of value, the great mass of statistics which Mr. Chandler collected as to prices in the neighborhood of every lot that came within the range of his examination, together with the prices of each such lot itself, enabled him to fairly estimate the land value of that neighborhood. By applying this method to several of the more valuable neighborhoods of the business section, and confirming his estimates by reference to public records, private archives, and market reports, he ascertained the different values at different times. Mr. Chandler then obtained the opinions of 100 of the best posted real estate men in Chicago as to the most valuable quarter acre in the city. Preponderance of opinion settled upon the southwest corner of State and Madison streets, part of the school fund property controlled by the Board of Education. This had never been sold, but with the information he had already collected regarding the prices of neighboring property, Mr. Chandler was able to determine the value of the quarter acre in question for each year from 1830 to 1894. This is the property to which the table relates.

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[1] From *Eighth Biennial Report of the Bureau of Labor Statistics of Illinois* (1894), pp. 276-79.

But for the figures showing the number of improved average Illinois farms,[1] and the numbers of days' or years' work at unskilled labor[2] that would have been necessary each year to buy this quarter acre, the following table (p. 637) is as Mr. Chandler constructed it, the barometrical changes referring of course to business conditions.

Here we find this quarter acre of raw prairie land near the mouth of the Chicago river, worth in 1830, when the population of Chicago numbered fifty people, but $20 in money, or 13½ days' unskilled labor. It would not then have exchanged for one one-hundredth part of an average Illinois farm of the present time. With population increasing and business promising, this quarter acre rose in value year by year until, in the "boom" of 1836, it was worth $25,000. At that time it would have taken fifty-five years' unskilled labor to buy it, and it would have exchanged for twelve average Illinois farms of the present time. But the panic came in 1837, and this quarter acre fell to almost one-tenth of its "boom" value. Throughout the succeeding business depression it continued to fall until 1842, when it reached bottom at

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[1] The average size of farms—62.38 acres, and the average value—$32.87 per acre, are taken from the report of this Bureau for 1890, p. 257.

[2] Unskilled labor is estimated at $1.50 a day for each year of the period. Part of the time it was less, and part of the time more; but this sum will be recognized as fair for the purposes of the comparison.

Date	Changes of Barometer	Population of Chicago	Annual Increase Per Cent	Value of Quarter Acre	Annual Increase Per Cent	Annual Decrease Per Cent	Number of Average Illinois Farms at $2,050, Necessary to Buy the Quarter Acre	Number of Days' Work at $1.50 a Day, Necessary to Buy the Quarter Acre	Number of Years' Work at $1.50 a Day and 300 Days to the Year, Necessary to Buy the Quarter Acre
1830	Clearing	50	..	$20	....	..	0.009	13.33	....
1831	Fair	100	100	22	10	..	0.011	14.67	....
1832	War storm	200	100	30	40	..	0.015	20	....
1833	Rising	350	75	50	67	..	0.024	33.33	....
1834		2,000	467	200	300	..	0.098	133.33	....
1835		3,265	60	5,000	2400	..	2.44	......	11.11
1836	Booming	3,820	17	25,000	400	..	12.2	......	55.56
1837	Panic	4,179	10	3,000	....	88	1.47	......	6.67
1838	Depression	4,000	−4	2,500	....	17	1.22	......	5.56
1839		4,200	5	2,000	....	20	0.97	......	4.44
1840		4,470	6	1,500	....	25	0.73	......	3.33
1841		5,000	12	1,250	....	17	0.61	......	2.78
1842		6,000	20	1,000	....	20	0.49	......	2.22
1843	Rising	7,589	25	1,100	10	..	0.54	......	2.44
1844		8,000	6	1,200	10	..	0.59	......	2.67
1845		12,088	50	5,000	20	..	2.44	......	11.11
1846	Booming	14,169	16	15,000	200	..	7.32	......	33.33
1847	Panic	16,859	18	12,000	....	20	5.85	......	26.67
1848	Showers of gold	20,023	25	13,000	9	..	6.34	......	28.89
1849	Mirage of wild cat	23,047	15	15,000	15	..	7.32	......	33.33
1850	Rising	28,269	22	17,500	17	..	8.54	......	38.89
1851		34,000	22	20,000	14	..	9.76	......	44.44
1852		38,754	14	25,000	25	..	12.2	......	55.56
1853		60,662	60	30,000	20	..	14.63	......	66.67
1854	Drought	65,872	9	35,000	17	..	17.07	......	77.78
1855	Buoyant	80,023	23	40,000	14	..	19.51	......	88.89
1856	Booming	84,113	5	45,000	12	..	21.95	......	100
1857	Panic	93,000	11	35,000	....	22	17.07	......	77.78
1858	Depression	91,000	−2	30,000	....	14	14.63	......	66.67
1859		95,000	4	29,000	....	3	14.15	......	64.44
1860		109,000	15	28,000	....	3	13.66	......	62.22
1861	Great war clouds	120,000	10	28,000	....	..	13.66	......	62.22
1862		138,000	15	32,000	15	..	15.61	......	71.11
1863		160,000	16	33,000	3	..	16.1	......	73.33
1864		169,353	6	36,000	13	..	17.56	......	80
1865	Calm	178,900	6	45,000	25	..	21.95	......	100
1866	Rising	200,418	12	57,600	28	..	28.1	......	128
1867		220,000	10	65,000	12	..	31.71	......	144.44
1868		252,054	15	80,000	23	..	39.02	......	177.78
1869		272,043	8	90,000	12	..	43.9	......	200
1870		298,977	9	120,000	33	..	58.54	......	266.67
1871	Very hot	325,000	9	100,000	....	17	48.78	......	222.22
1872	Booming	367,396	13	125,000	25	..	60.73	......	277.78
1873	Panic	380,000	3	100,000	....	20	48.78	......	222.22
1874	Depression	395,408	4	95,000	....	5	46.39	......	211.11
1875		400,000	1	92,500	....	3	45.12	......	205.56
1876		407,661	2	90,000	....	3	43.9	......	200
1877		420,000	3	90,000	....	..	43.9	......	200
1878		436,731	4	95,000	5	..	46.39	......	211.14
1879	Gold rays	465,000	7	119,000	25	..	58.05	......	264.49
1880	Rising	503,298	8	130,000	10	..	63.41	......	288.81
1881		530,000	5	145,000	12	..	70.73	......	322.22
1882		560,693	6	175,000	21	..	85.37	......	388.89
1883		590,000	6	238,000	36	..	116.1	......	528.89
1884	Stormy	629,985	6	250,000	5	..	121.95	......	556.56
1885	Rising higher	700,000	11	275,000	10	..	134.15	......	611.11
1886		825,880	18	325,000	18	..	158.54	......	722.22
1887		850,000	3	[*]435,000	34	..	212.2	......	744.44
1888		875,500	3	600,000	38	..	292.2	......	1,333.33
1889		900,000	3	750,000	25	..	365.85	......	1,666.67
1890	Booming	1,098,570	22	900,000	20	..	439.02	......	2,000
1891	Columbian sunshine overcomes panic	1,200,000	10	1,000,000	11	..	487.8	......	2,222.22
1892		1,300,000	9	1,000,000	....	..	487.8	......	2,222.22
1893		1,400,000	8	1,000,000	....	..	487.8	......	2,222.22
1894	....	1,500,000	...	1,250,000	....	..	609.76	......	2,777.78

[*] Authority of Real Estate Board Valuation Committee.

a value of $1,000, which was five times as much, however, as its value just before the "boom" began.

With the return of better times in 1843, and an increase of population, the quarter acre began again, though timidly, to rise in value; but in 1845, with a largely increased population, it had risen to $5,000 and in 1846, in the second "boom," to $15,000. The "boom" was followed as usual by a panic, and notwithstanding an increase in population of 18 per cent, the value of the quarter acre dropped to $12,000. The collapse of this "boom," it will be observed, left the property at a value twelve times higher than the point to which it had dropped upon the collapse of the previous "boom."

The gold discoveries and a continual growth in population revived the value slightly in 1848. From that time on it rose rapidly to a culmination of $45,000—equal to twenty-one average Illinois farms of the present time, and 100 years of one man's labor—in the "boom" year of 1856. The panic of 1857 at once brought it down to $35,000 and the succeeding period of hard times continued to reduce it until in 1861 it was as low as $28,000. But from this point it steadily rose through the war and the brisk times that followed, and even through the period of the great fire, until 1872, when it was worth $125,000. Once more there came a panic and a depression, out of which this quarter acre emerged in 1878 with a value of $95,000—nearly four times its value on the crest of the first "boom," six times its value on the crest of the second, and twice its value on the crest of the third.

With the return of better times in 1879 the value of the quarter acre sprang forward once more, and since that, through good times and bad, it has gone steadily on. In the "boom" year of 1890 it was worth $900,000. The next year it went up to $1,000,000, where it remained until 1894, when its value was estimated at $1,250,000.

Six hundred average Illinois farms would not now exchange for that quarter acre of raw prairie land, and nearly 3,000 years of the labor of one man would be required to buy it. If 500 years before the Christian era, some man had obtained employment at the equivalent of $1.50 a day, had, like some Wandering Jew, been preserved through all the vicissitudes of the centuries, had been miraculously sustained without expense for any of the necessaries or luxuries of life, had done his work regularly from that day to this, 300 days in the year without losing a day, and had hoarded all his wages, his savings would not yet be enough to buy this quarter acre of prairie land at the mouth of the Chicago river.

The conservative character of Mr. Chandler's estimate is demonstrated by examination of the ground leases of land lying in the neighborhood of the quarter acre to which his table relates.

185. EXAMPLES OF REAL ESTATE TRANSACTIONS[1]

a) Max Goldstine, who has acquired much property by purchase and long term lease in the past year, has added to his holdings in the block in Clark street, between Washington and Madison streets, by leasing from Mary J. Hoxie and David G. Hamilton the premises on the west side of the street for 99 years from May 1, 1911, at a net annual rent of $6,000 for the first five years and $6,500 for the remainder of the term.

The lot is 19¾×80 feet. Capitalizing the rent on a 4 per cent basis it gives $162,500, which is at the rate of $102 a square foot, or $8,200 a front foot. The board of review valued the property at $89,650, of which $5,050 was in the old four story building on the premises. Mark Levy & Bro. were the brokers.

Several months ago Mr. Goldstine, through the same brokers, leased from John T. Boddie the property adjoining on the south, 40.5×80, for 99 years at an annual rent of $13,000 so that he now has a holding 60.25×80 feet. Mr. Goldstine is to erect a new fireproof building prior to May 1, 1922, to cost not less than $150,000.

It is interesting to note that in 1844 Joel Manning purchased the whole lot 8, fronting 80 feet on Madison street and 196 feet on Clark street, for $1,500.

b) The property at the southwest corner of South Water and Dearborn streets was first sold by the estate of Simon Reid to Henry Botsford and then leased for a term of 99 years to Frank and Lawrence Cuneo, who occupy it with their business. It fronts 43 feet on South Water Street with a depth of 50 feet on Dearborn, and is improved with a four story and basement building.

Mr. Botsford paid $127,000 for the property and then leased to the Cuneos at an annual rent of $6,435, they paying $10,000 for the building. J. A. Briggs & Co. represented the purchaser and the lessees in the transaction, while Howard Grey represented the Reid estate.

Capitalizing the ground rent on a 4 per cent basis gives $160,875, or over $74 a square foot. The board of review valued the property at $117,130.

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[1] From the *Chicago Daily Tribune*, February 28, 1911.

XV. WAGES

186. LABOR AS A SOURCE OF INCOME[1]

For the purposes of this essay, the income of an individual is the aggregate of economic goods which in the course of a unit of time become available to him for final consumption without entailing impairment of his capital. Unless otherwise stated, the time unit is the year, and the income is expressed in terms of money. So defined, personal incomes are derived from three sources: from *labor*, from the *ownership of property*, and from the *rights of private property.*

"Labor is a wealth-creating effort."[2] Any human exertion directed primarily toward the creation of utility, is labor. Although the work of a child at school may create "productive power," the immediate end not being production, it is not economic labor. "The remuneration of labor,"[3] "the earnings assigned to men for their work,"[4] in other words, the recompense of human exertion in the production of utility is wages. Thus in the economic sense wages includes more than is popularly understood by the term, includes *all* material incomes which reward labor. Theoretically every one of the thirty million Americans engaged in gainful occupations either actually receives or should impute to himself wages. The salary of the president of the United States Steel Corporation, the profit of the underwriter, and the pay of the laborer fall in the same category. These examples, however, illustrate the three varieties of wages.

Perhaps it would be better to say that there are two classes of wages, one of which may be subdivided. In the first place, the amount of remuneration may be determined in advance by definite agreement. Such a stipend is a salary if the contract is for a year or more, wages (in the popular sense) if the time unit is less than twelve months.[1] Although, perhaps, not strictly included by the definition, what are generally known as piece payments are rightly classed with wages proper for two reasons: First, the piece rate is usually determined in the beginning by what a normal operative produces in a given period, and is frequently reduced if this standard is much exceeded;[2] second, the tasks of the piece worker, and his social position, correspond very closely to those of the time worker. The other class of rewards of labor includes those forms of compensation which depend in a peculiar degree upon the skill, energy, and good fortune of the recipient. Under this head would fall, for example, the commissions of salesmen and of brokers, the "profits" of the farmer and shop-keeper (except interest on capital), the incomes of physicians and lawyers, and a large part of the speculator's gain. Although there seems to be no recognized name for this group of indeterminate remunerations, for convenience, and without essential inaccuracy, it may be styled "contingent earnings." The income of a particular individual may vary but little from year to year and still be in a proper sense "contingent." This distinction is by no means fanciful, for, in addition to the economic significance, there are corresponding lines of social cleavage. In society the salaried man seems to occupy a higher position than the wage earner, regardless of the comparative size of their incomes; in the four hundreds, are the families enjoying contingent earnings. Doubtless this social gradation is partly due to the distribution of property: the wage-worker is seldom a large owner, the salaried person may not possess property but often does, and a prime requisite for the enjoyment of a contingent income is frequently the control of some capital.

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[1] Adapted from F. H. Streightoff, *The Distribution of Incomes in the United States*, pp. 27–33. Columbia University *Studies in History, Economics, and Public Law*, Vol. LII, 1912.

[2] J. B. Clark, *Essentials of Economic Theory*, p. 9.

[3] Seligman, *Principles of Economics*, p. 411.

[4] Seager, *Introduction to Economics*, p. 222.

That one man may procure labor incomes of all three classes should require no explanation. A professor, for instance, may be paid a salary for teaching, he may be given a weekly wage for summer work in a government bureau, and may in addition be blessed with large checks for scientific articles, or fees as a consulting expert. Thus one person may receive a salary, wages, and a contingent income.

Recognizing, then, this demarkation of the rewards of labor into wages, salaries, and contingent earnings, the question of the relative importance of these groups arises. Although no attempt has ever been made in the United States to gather statistics upon the basis of such a classification, an approximation may be obtained from the data in the *Census of Occupations* and in the *Census of Manufactures*. The latter distinguishes between "firm members," "salaried employees," and "wage-earners." In the light of this information, and of a general knowledge of the modes of remuneration in the various branches of industry, it is possible to form a rough table.

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[1] *Abstract of the Twelfth Census*, p. 300, note 2.

[2] Adams and Sumner, *Labor Problems*, p. 264; *Twelfth Census, Employees and Wages*, p. xix.

CLASSIFICATION OF RECIPIENTS OF INCOMES FROM LABOR IN THE UNITED STATES, 1900

I	II	III	IV
Division of Industry	Wages	Salaries	Contingent Earnings
Agricultural pursuits	4,863,000	18,000	5,557,000
Professional service	6,000	819,000	440,000
Domestic and personal service	5,154,000	131,000	409,000
Trade and transportation	2,317,000	1,079,000	1,382,000
Manufacturing* and mechanical	6,001,000	403,000	709,000
Totals	18,341,000	2,450,000	8,497,000

* Proprietors and firm members, 708,623; salaried officials, clerks, etc., 397,092; wage-earners (average number), 5,314,539. *Abstract of the Twelfth Census*, p. 300.

From this it would appear that, of the twenty-nine million persons gainfully employed in 1900, about six-tenths were wage-earners, nearly one-tenth were on salaries, and approximately three-tenths enjoyed contingent incomes.[1] In this connection it is interesting to note that the salary seems to be gaining in favor over the wage as a form of remuneration.

The second source of income is the ownership of property. The yield of lands and houses, the return from capital—whether invested in mortgages, bonds, stocks, partnerships, or individual businesses—royalties, and other less important forms of revenue, in fact all that the economist calls rent, interest, and profits, are included in this class. Profits belong to the owner of a business, whether or not he owns the capital or manages the concern. In its pure form, income from property ownership accrues, for example, to one whose fortune consists of stocks and long-term bonds, one who receives dividends and interest without the necessity of reinvesting; or to a person who leaves the administration of his wealth entirely in the hands of an agent, trustee, or attorney. If, however, the individual speculates on the exchange, rents his own houses, purchases short-time mortgages, tills his farm, or conducts his store, then his income is derived from two sources, labor and the ownership of property. However clever he may be, without the control of property, the speculator can not carry on his business, and so, although his skill enormously increases his earnings, they are due in part to capital, are not pure economic wages. There seems to be a considerable number of men, who, with a small sum of, say, ten thousand dollars, by devoting their entire time to the stock market, extract annual incomes of an approximately equal amount. By way of contrast, it is not an extremely infrequent phenomenon for the proprietor of a business to continue year after year with a net income less than his capital would earn if otherwise safely invested. His wages are either negative, or else they are entirely psychological and consist of the pleasure of being an entrepreneur; considering the situation from another viewpoint, his wages are ample, but his investment bears scant interest. Thus it is apparent how difficult may be the attempt to distinguish between income from the ownership of property and income from labor—in practice they are frequently inseparable.

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[1] It is interesting to note the rough agreement between these results and the estimate of Professor Seager—employing class, 9,830,000; employed class, 19,100,000.

Incomes of the third class are neither the rewards of labor, nor the returns to the owner of productive property. For want of a better term, they may be said to arise from the *right of private property;* they include, mainly, gifts, bequests, and inheritances.

187. TWO EARLY THEORIES OF WAGES

(*a*) A COST OF SUBSISTENCE THEORY OF WAGES[1]

Labor, like all other things which are purchased and sold, and which may be increased or diminished in quantity, has its natural and its market price. The natural price of labor is that price which is necessary to enable the laborers, one with another, to subsist and to perpetuate their race, without either increase or diminution.

The power of the laborer to support himself, and the family which may be necessary to keep up the number of laborers, does not depend on the quantity of money which he may receive for wages, but on the quantity of food, necessaries, and conveniences become essential to him from habit, which that money will purchase. The natural price of labor, therefore, depends on the price of the food, necessaries, and conveniences required for the support of the laborer and his family. With a rise in the price of food and necessaries, the natural price of labor will rise; with the fall in their price, the natural price of labor will fall.

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[1] Adapted from David Ricardo, *Principles of Political Economy and Taxation* (1817), chap. v.

The market price of labor is the price which is really paid for it, from the natural operation of the proportion of the supply to the demand; labor is dear when it is scarce, and cheap when it is plentiful. However much the market price of labor may deviate from its natural price, it has, like commodities, a tendency to conform to it.

It is when the market price of labor exceeds its natural price, that the condition of the laborer is flourishing and happy, that he has it in his power to command a greater proportion of the necessaries and enjoyments of life, and therefore to rear a healthy and numerous family. When, however, by the encouragement which high wages give to the increase of population, the number of laborers is increased, wages again fall to their natural price, and indeed from a reaction sometimes fall below it.

When the market price of labor is below its natural price, the condition of the laborers is most wretched: then poverty deprives them of those comforts which custom renders absolute necessaries. It is only after their privations have reduced their number, or the demand for labor has increased, that the market price of labor will rise to its natural price, and that the laborer will have the moderate comforts which the natural rate of wages will afford.

Notwithstanding the tendency of wages to conform to their natural rate, their market rate may, in an improving society, for an indefinite period, be constantly above it; for no sooner may the impulse, which an increased capital gives to a new demand for labor, be obeyed, than another increase of capital may produce the same effect; and thus, if the increase of capital be gradual and constant, the demand for labor may give a continued stimulus to an increase of people.

(*b*) THE WAGES FUND

I[1]

The rate of wages depends on the proportion between population and employment, in other words, capital.

We come now to the question as to what determines the share of the laborer, or the proportion in which the commodity, or commodity's worth, is divided between him and the capitalist. . . . .

It is very evident, that the share of the two parties is the subject of a bargain between them; and if there is a bargain, it is not difficult to see on what the terms of the bargain must depend. All bargains, when left in freedom, are determined by competition, and the terms alter according to the state of supply and demand.

Let us begin by supposing that there is any number of capitalists with a certain quantity of food, raw material, and instruments, or machinery; that there is also a certain number of laborers; and that the proportion, in which the commodities produced is divided between them, has fixed itself at some particular point.

Let us next suppose that the laborers have increased in number one half, without any increase in the quantity of capital. There is the same quantity of the requisites for the employment of labor; that is, of food, tools, and material, as there was before; but for every 100 laborers there are now 150. There will be 50 men, therefore, in danger of being left out of employment. To prevent their being left out of employment they have but one resource; they must endeavor to supplant those who have forestalled the employment; that is, they must offer to work for a smaller reward. Wages, therefore, decline.

If we suppose, on the other hand, that the quantity of capital has increased, while the number of laborers remains the same, the effect will be reversed. The capitalists have a greater quantity than before of the means of employment; of capital, in short, from which they wish to derive advantage. To derive this advantage they must have more laborers than before. These laborers are all employed with other masters: to obtain them they also have but one resource—to offer higher wages. But the masters by whom the laborers are now employed are in the same predicament, and will of course offer higher to induce them to remain. This competition is unavoidable, and the necessary effect of it is a rise of wages.

It thus appears, that if population increases, without an increase of capital, wages fall; and that if capital increases, without an increase of population, wages rise. It is evident, also, that if both increase, but one faster than the other, the effect will be the same as if the one had not increased at all, and the other had made an increase equal to the difference. Suppose, for example, that population has increased one-eighth, and capital one-eighth; this is the same thing as if they had stood still, with regard to the effect upon labor. But suppose that, in addition to the above-mentioned one-eighth, population has increased another eighth, the effect, in that case, upon wages would be the same as if capital had not increased at all, and population had increased one-eighth.

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[1] From James Mill, *Elements of Political Economy* (1821), pp. 25–28.

Universally, then, we may affirm, other things remaining the same, that if the ratio which capital and population bear to one another remains the same, wages will remain the same; if the ratio which capital bears to population increases, wages will rise; if the ratio which population bears to capital increases, wages will fall.

II[1]

Wages, then, depend mainly upon the demand and supply of labor; or, as it is often expressed, on the proportion between population and capital. By population is here meant the number only of the laboring class, or rather of those who work for hire; and by capital, only circulating capital, and not even the whole of that, but the part which is expended in the direct purchase of labor. To this, however, must be added all funds which, without forming a part of capital, are paid in exchange for labor, such as the wages of soldiers, domestic servants, and all other unproductive laborers. There is unfortunately no mode of expressing by one familiar term the aggregate of what may be called the wages-fund of a country: and as the wages of productive labor form nearly the whole of that fund, it is usual to overlook the smaller and less important part, and to say that wages depend on population and capital. It will be convenient to employ this expression, remembering, however, to consider it as elliptical, and not as a literal statement of the entire truth.

With these limitations of the terms, wages not only depend upon the relative amount of capital and population, but cannot, under the rule of competition, be affected by anything else. Wages (meaning, of course, the general rate) cannot rise, but by an increase of the aggregate funds employed in hiring laborers, or a diminution in the number of the competitors for hire; nor fall, except either by a diminution of the funds devoted to paying labor, or by an increase in the number of laborers to be paid.

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[1] Adapted from John Stuart Mill, *Principles of Political Economy* (1848), Book I, chap. xi.

188. WAGES AND HOURS OF LABOR, 1890–1907[1]

CALENDAR YEAR	EMPLOYEES	HOURS PER WEEK	WAGES PER HOUR	FULL-TIME WEEKLY EARNINGS PER EMPLOYEE	RETAIL PRICES OF FOOD, WEIGHTED ACCORDING TO FAMILY CONSUMPTION	PURCHASING POWER MEASURED BY RETAIL PRICES OF FOOD, OF—	
						Hourly Wages	Full-Time Weekly Earnings per Employee
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
1890	94.8	100.7	100.3	101.0	102.4	97.9	98.6
1891	97.3	100.5	100.3	100.8	103.8	96.6	97.1
1892	99.2	100.5	100.8	101.3	101.9	98.9	99.4
1893	99.4	100.3	100.9	101.2	104.4	96.6	96.9
1894	94.1	99.8	97.9	97.7	99.7	98.2	98.0
1895	96.4	100.1	98.3	98.4	97.8	100.5	100.6
1896	98.6	99.8	99.7	99.5	95.5	104.4	104.2
1897	100.9	99.6	99.6	99.2	96.3	103.4	103.0
1898	106.4	99.7	100.2	99.9	98.7	101.5	101.2
1899	112.1	99.2	102.0	101.2	99.5	102.5	101.7
1900	115.6	98.7	105.5	104.1	101.1	104.4	103.0
1901	119.1	98.1	108.0	105.9	105.2	102.7	100.7
1902	123.6	97.3	112.2	109.2	110.9	101.2	98.5
1903	126.5	96.6	116.3	112.3	110.3	105.4	101.8
1904	125.7	95.9	117.0	112.2	111.7	104.7	100.4
1905	133.6	95.9	118.9	114.0	112.4	105.8	101.4
1906	142.9	95.4	124.2	118.5	115.7	107.3	102.4
1907	144.4	95.0	128.8	122.4	120.6	106.8	101.5

189. WOMEN'S WORK AND WAGES[2]

It seems evident that modern improvements in machinery under normal circumstances favor the employment of women rather than of men. There is some reason to suppose that machinery also favors the employment of children as compared with adults, where the economic forces are allowed free play.

So far as children are concerned, the economic tendency to adjust machine-tending to their limited strength is in some measure defeated by the growth of strong public feeling and legislative protection of younger children. Had full and continued license been allowed to the purely "economic" tendencies of the factory system in England and in America, there can be little doubt but that almost the whole of the textile industry and many other large departments of manufacture would be administered by the cheap labor of women and young children. The profits attending this free exploitation of cheap labor would have been so great that invention would have been concentrated, even more than has been the case, upon spreading out the muscular exertion and narrowing the technical skill so as to suit the character of the cheaper labor. The increasing employment of women in machine-industry is in nearly all cases directly traceable to the "cheapness" of woman's labor as compared with man's. Thus we are brought to the discussion of the important question which underlies all understanding of the position of woman in modern industry—"Why are women paid less wages than men?"

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[1] From *Statistical Abstract of the United States*, 1912, p. 296. Relative numbers are computed on the basis of the average for 1890–1899, taken as 100.

[For a suggestion of the significance of the decrease in hours per week shown by this table see Selection 209, "Long Hours versus Efficiency."—EDITORS.]

[2] Adapted from J. A. Hobson, *The Evolution of Modern Capitalism*, chap. xii (original edition). Walter Scott Publishing Co.

[This passage, written nearly twenty years ago, is in some respects out-of-date. —EDITORS.]

In almost all kinds of work in which both men and women are engaged, the women earn less than the men. Where men and women are engaged in the same industries but in different branches, the wage level of the woman's work is nearly always lower than that of the men. A general survey of industry shows that the highly paid industries are almost invariably monopolized by men, the lowly paid industries by women. This applies not only to unskilled and skilled manual work, but to routine-mental, intellectual, and artistic work,[1] wherever custom or competition are the chief direct determinants of wages. Certain exceptions to this rule, which readily suggest themselves, are explained by the fact that the wages of the labor in question are determined not by custom or competition, but by some other law. Where the product is of the highest intellectual or artistic quality, sex makes no difference in the price; "the rent of ability" of George Eliot or Madame Patti is determined by the law of monopoly values. In certain employments, as, for instance, the stage, sexual attractions give women a positive advantage, which in certain grades of the profession assist them to secure a high level of remuneration. So also in a few cases governments or private employers pay women as highly as men for the same work, though women could be got to work for less. But even in those occupations where women would seem to be most nearly upon an economic equality with men, in literature, art, or the stage, the scale of pay for all work, save that where special skill, personal attraction, or reputation secures a "fancy" price, is lower for women than for men.

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[1] This fourfold classification—(1) manual, (2) routine-mental, (3) artistic, (4) intellectual—is a serviceable suggestion of Mr. Sidney Webb in his paper upon woman's wages (*Economic Journal*, I, 1881).

It is easy to find answers to the question, "Why are women paid less than men?" which evidently contain an element of truth. Three answers leap readily to the lips: "Because women cannot work so hard or so well," "Because women can live upon less than men," "Because it is more difficult for a woman to get wage-work." Each of these answers comprises not one reason but a group of reasons why women get low wages, and the difficulty lies in relating the different reasons in these different groups so as to yield something that shall approach an accurate solution of the problem. Setting these groups in somewhat more exact language, we may classify the causes as—

a) Causes relating to "productivity" or efficiency of labor.

b) Causes relating to "needs" or standard of comfort.

c) Causes relating to character and intensity of competition.

Women do not on the average work so hard or so well as men, so that if wages were paid with sole reference to quantity and quality of the product of labor women would get less. This inferiority in the net efficiency of women's labor is partly due to physical, partly to social, causes. The following are the leading factors in this inferiority of efficiency:

(1) The physical weakness of woman, as compared with man, closes many occupations to her. In manufactures the metal industries have been almost entirely closed to women, and most branches of the mining and railway industries. In England and America the rougher work of agriculture is almost wholly given over to male labor, and in several continental countries there is a growing tendency to spare women the kinds of labor which tax the muscular forces most severely. The growing consideration for the duties of maternity, operating through public opinion and legislation, favor this curtailment of woman's sphere of activity. Further, in all employments where physical strength is an important factor, the net productivity of woman's labor tends to fall below man's, although in some cases superior deftness or lightness of hand related to physical fragility may compensate. Even in modern textile factories the superior force of man's muscles often gives him a great advantage. In fustian and velvet cutting, where the same piece-wages are paid to men and women, the actual takings of the men are about double. "Every

person has two long frames upon which the cloth is stretched ready for cutting, and while women are unable to cut more than one piece at a time, men can cut two pieces without difficulty."[1]

Where physical strength is not a prime factor it may enter incidentally. So even in weaving women are under some disadvantage through inability to work the heavy Jacquard looms, and to "tune" their looms.[2]

Where manual work is concerned brute strength and endurance form an important ingredient in what is called manual skill, and affect the quality of the work as well as the pace and regularity of the output. Though, as we have seen, a chief object of modern machinery is to diminish the importance of this element, it plays no inconsiderable part in affecting the quantity of work turned out by women as compared with men in industries where the direct strain upon the muscles is less severe.

(2) But even when we take those kinds of work where skill seems least dependent upon physical force, men have generally some advantage in productivity, though a smaller one. Where the elements of design, resource, judgment enter in, the superiority of male labor is unquestioned, and in occupations which demand these qualities women are confined generally to the lower routine portions of the work. How far these defects of manual and intellectual skill, which generally prevent women from successfully competing in the higher grades of labor, are natural, how far the results of defective education and industrial training, we are not called upon here to consider. The fact stands that women do not work so well.

(3) The reluctance of male workers to allow women to qualify for and to undertake certain kinds of work which men choose to regard as "their own," though sometimes defensible when all the terms of competition are taken into account,[3] must be held to confine and lessen the average productivity of female labor in certain departments of industry. Closely allied to this is the social feeling, partly based upon the recognition of a real difference of physical and mental

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[1] *Report to Commission of Labour on Employment of Women*, p. 141.

[2] Webb, *Economic Journal*, I, p. 658.

[3] Women sometimes abuse the superior competitive powers contained in their lower standard of subsistence, and the smaller number of those dependent on them, to undersell male labor. In Sheffield file-making, where women are paid the same list of prices as men, it is said that they practice sweating in their homes to the detriment of male workers. So in carpet-weaving at Halifax; recently when the

vigor, partly upon prejudice, which bars women from the highly paid and responsible posts of superintendence and control in industries where both sexes are employed. In a general comparison of the male and female wage in a highly organized industry, the fact that women are held disqualified for all posts of high emolument and responsibility has a material effect upon the average of wages. Where men and women work in the same industry, the women are commonly confined to the less productive work, and where they do the same work they seldom reach man's level in quantity and quality.

(4) This inferior efficiency is not solely attributable to these reasons. Woman's incentive to acquire industrial efficiency is not so great as man's. A large number of women-workers do not enter an industrial occupation as the chief means of support throughout their life. The influence of matrimony and domestic life operates in various ways upon women's industry. The expectation of marriage and a release from industrial work must lessen the interest of women in their work. The fact that even while unmarried a large proportion of women-workers are not dependent upon their earnings for a livelihood will have the same result. A larger proportion of the woman's industrial career is occupied in acquiring the experience which makes her a valuable worker, and the probability that, after she has acquired it, she may not need to use it diminishes both directly and indirectly the net value of her industrial life; the element of uncertainty and instability prevents the advancement of competent women to posts where fixity of tenure is an important factor.

Where married women are engaged in industrial work either in factories or at home, domestic work of necessity engages some of their strength and interest, and is liable to trench upon the energy which otherwise might go into industry. Even unmarried women have frequently some domestic work to do which is added to their industrial work. Thus the incentive to efficiency is weaker in woman, her industrial position is less stable and her industrial life shorter, while part of her energy is diverted to other than industrial channels.

(5) There is conclusive evidence to show that women are more often absent from work owing to sickness and other claims upon their

men struck against a reduction upon their wage of 35*s*., women took the work at 20*s*. (Lady Dilke, "Industrial Position of Women," *Nineteenth Century*, October, 1893). In watch-making, "the handwork for which men were paid about 18*s*. a week is now done by women with machinery for about 12*s*." (*Report to Labour Commission on Women's Employments*, p. 146).

time than men.[1] Though closely related to the former factors this may be treated separately in assessing the net productiveness of women, because it is distinctly measurable. But in touching this point it should be remarked that weaker muscular development does not necessarily imply more sickness. The loss of working time sustained by women could probably be reduced considerably by more attention to physical training and exercise and by a higher standard of diet.

(6) Although the limitations of law and custom, which limit the hours of labor for women in many of their industrial occupations and forbid them to undertake night work, cannot be reasonably held to reduce the net efficiency of women's labor taken as an aggregate, they must be allowed to diminish the direct net productiveness of women in certain employments as compared with men, and either to bar them out of these employments or engage them upon lower wages.

(7) Lastly, the inferior mobility of woman as compared with man has an influence in reducing the average efficiency of her labor. On the one hand, women are more liable to have the locality of their home fixed by the requirements of the male worker in the family; on the other hand, they are physically less competent to undertake work far from their home. Hence they are far more narrowly restricted in their choice of work than men. They must often choose not that work they like best, or can do best, or which is most remunerative, but that which lies near at hand. This restriction implies that large numbers of women undertake low-skilled, low-paid, ineffective, and irregular work at their homes or in some neighboring work-room, instead of engaging in the more productive and more remunerative work of the large factories. Every limitation in freedom of choice of work signifies a reduction in the average effectiveness of labor.

These elements of inferior physique and manual skill, lower intelligence and mental capacity, lack of education and knowledge of life, irregularity of work, more restricted freedom of choice, must in different degrees contribute to the inferior productivity of woman's industrial labor.

In regarding this influence the experienced student of industrial questions hardly requires to be reminded that these must be regarded not merely as causes of low wages, but also as effects. This constant recognition of the interaction of the phenomena we are regarding as cause and effect is essential to a scientific conception of industrial society. Women are paid low wages because they are relatively inefficient workers, but they also are inefficient workers because they are paid low wages.

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[1] Dr. Bertillon (*Journal de la société de statistique de Paris*, October-November, 1892) shows that among the Lyons silkworkers (1872–89) and in the Italian Societies (1881–85) the sickness of women is considerably greater than of men. In Lyons 9.39 days as compared with 7.81 for men; in Italy 8.5 as compared with 6.6.

While this smaller productivity diminishes the maximum wage attainable by women as compared with men, it is evident that many forces are at work which tend to equalize the productivity of men and women in industry: the evolution of machinery adapted to the weaker physique of women; the breakdown of customs excluding women from many occupations; the growth of restrictions upon male adult labor with regard to the working-day, etc., correspondent with those placed upon women; improved mobility of women's labor by cheaper and more facile transport in large cities; the recognition by a growing number of women that matrimony is not the only livelihood open to them, but that an industrial life is preferable and possible. These forces, unless counteracted by stronger moral and social forces, seem likely to raise the average productivity of women's industrial labor, and to incite her more and more to undertake industrial wage-work.

As the maximum wage may be said to vary with productivity, so the minimum wage is said to vary with the "wants" of the worker. Women are said to "want" less than man, and therefore the stress of competition can drive their wages to a lower level. It is possible that a woman can sustain the smaller quantity of physical energy required for her work somewhat more cheaply than a man can sustain the energy required for his work, and that the early increments of material comfort above the bare subsistence line may be attended by a larger increase of productivity in the man than in the woman. If this is so, then the minimum subsistence wage and the wage of true economic efficiency, the smallest wage a wise employer in his own interest will consent to pay, are lower in the case of women than of men. But this difference furnishes no adequate explanation of the difference between the male and the female minimum wage. The wage of the low-skilled male laborer enables him to consume certain things which do not belong strictly to his "subsistence"—to wit, beer and tobacco; the wage of the low-skilled female laborer often falls below what is sufficient with the most rigid economy to provide "subsistence." We are not then concerned with a difference which refers primarily to the quantity of food, etc., required to support life. The wages of the low-skilled laborer in regular employ would, if properly used, suffice to furnish him more than a bare physical subsistence; the wages of the lowest-paid women workers in factories would not suffice to maintain them in the physical condition to perform their work.

It is not then precisely with the "standard of comfort" of male and female workers that we are concerned. The economic relation in which men and women workers stand to other members of their family is a more important factor. The wage of a male worker must be sufficient to support not only himself but the average family dependent upon him, in the standard of comfort below which he will not consent to work. When little work is available for his wife and children, or where his "standard of comfort" requires them not to undertake wage-work, his minimum wage must suffice to keep some four persons. His standard of comfort may be beaten down by stress of circumstances, his family may be driven to take what work they can get, but in any case his wage must be above the "subsistence" of a single man. When the man is the sole wage-earner, or is only assisted slightly by his family, as, for example, in the metal and mining and building industries, average male wages are much higher than in the textile industries, where the women and children share largely in the work.

Women workers, on the other hand, have not in most cases a family to support out of their wages. In the majority of instances their own "sustenance" does not or need not fall entirely upon the wages they earn. They are partly supported by the earnings of a father or a husband or other relative, upon some small unearned income, upon public or private charity. Where married women undertake work in order to increase the family income, or where girls not obliged to work for a living enter factories or take home work to do, there is no ascertainable limit to the minimum wage in an industry. Grown-up women living at home will often work for a few shillings a week to spend in dress and amusements, utterly regardless of the fact that they may be setting the wage below starvation-point for those unfortunate competitors who are wholly dependent on their earnings for a living. Even where girls living at home pay to their parents the full cost of their keep, the economy of family life may enable them to keep down wages to such a point that another girl who has to keep herself alone may be sorely pressed, while a woman with a family to support cannot get a living.

Miss Collet, in her investigation of women workers in East London, remarked of the shirt-finishers, one of the lowest paid employments: "These shirt-finishers nearly all receive allowances from relatives, friends, and charitable societies, and many of them receive outdoor relief."[1] This is true of most of the low-paid work of women. Even in the textile factories, with the exception of weaving, most of the scales of wages are below what would suffice to keep the recipient in the standard of comfort provided by the family wage.

A knowledge of the productivity of labor as measuring the maximum wage-level, and of "wants" or standard of comfort as measuring the minimum wage-level, does not enable us to determine even approximately the actual wage-level in any industry. The actual wage may be fixed at any point between the two extremes. So far as competition is an active determinant, everything will depend upon the quantitative relation between supply and demand for labor. When there is a short supply of labor available for any work, wages may rise to the maximum; when there is more labor available than is required, wages will fall toward the minimum. But, as we have already admitted, competition works very slowly and inadequately in many of the industries in which women and children are engaged. The force of custom, assisted by ignorance of the labor market, prevents women from taking advantage of an increased demand or a decreased supply of labor to lift this wage above the customary level toward the level of productivity. Women are more contented to live as they have lived than men.

Those who have investigated the conditions of women workers in towns are agreed as to the enormous influence of class and aesthetic feelings in narrowing the competition. This sensitiveness of social distinction in industrial work, based partly upon consideration of the class and character of those employed, partly upon the skill and interest of the work itself, is a widespread and powerful influence among women workers. It tends to bring about that equalization of wages in skilled and unskilled industries which, as we have seen, practically exists, for if there is an economic rise of wages in the lower grades of work, it does not tempt the competition of high-skilled workers, while a corresponding rise in the wages of the higher grades would draw competitors from the lower grades to qualify themselves for undertaking work which would at once give them more money and more social respect. The lower wages often paid for more highly

[1] *Labour and Life of the People*, I, 410

skilled work simply mean that the women take out a larger portion of their wage in "gentility."

The above-mentioned forces operate chiefly as barriers of free economic competition. But women are equally at a disadvantage when and in so far as they do compete for work and wages. Weak, unorganized units of labor, they are compelled to make terms with large organized masses of capital. By the organized action of trade unionism the majority of skilled working men have been able to raise their wages far above the bare subsistence minimum, and to hold it at the higher level until a firm standard of higher comfort is formed to be a platform for further endeavor. With a few significant exceptions, skilled women workers have been unable to do the same. Instead of presenting a firm, united front to their employers in their demand for higher wages, or their resistance of a fall, they are taken singly and compelled to submit to any terms which the employers choose to impose, or custom appears to sanction. The consequence is that in most instances skilled women workers are paid very little higher wages than unskilled women workers. The high value due to their skill goes either to the employer in high profits, or, where keen competition operates, to the consumer in low prices; the woman who puts out skill is paid not according to her worth but according to her wants. Yet the possession of technical skill is the basis of trade organization. Wherever a number of women workers possess a particular skill and experience, and are engaged in fairly stable employment, the requisites of effective trade organization exist. If they could but combine, these women could wield an economic power, measured by the difficulty and cost of dismissing them *en masse* and replacing them by less skilled and experienced labor, which they can use as a lever to raise their wages and other conditions of employment by a series of steps until they approach the maximum limit imposed by their productivity.

This brings us to the most vital point in the problem of the industrial position of women. When there is an oversupply of labor qualified to compete for any work, wages must fall to the minimum of "wants" unless those in possession of the work are so strongly organized as to prevent outsiders from effectively competing. In a highly skilled trade the workers may often have a practical monopoly of the skill, which gives them both power to organize and power when organized. But in a low-skilled trade, or where employers are able to introduce unlimited numbers of girls into the trade, there exists no such power to organize. Those who most need organization are least able to organize. This is the crux for low-skilled male labor, and the great mass of women's industries are in the same economic condition, because the kind of skill required is possessed or easily attainable by a much larger number of competitors for work than are sufficient to meet the demand at a decent wage. The deep abiding difficulty in the way of organizing women workers lies here. Cut out as they are, by physical weakness, by lack of the means of technical training, in some cases by organized opposition of male workers, or by social prejudices, from competing in a large number of skilled industries, their competition within the permitted range of occupations is keener than among men: not merely in the unskilled but in the skilled industries the available supply of labor is commonly far in excess of the demand, for the skill is generally such as is common to or easily attainable by a large number of the sex. To this must be added the consideration that a larger proportion of women's industries are concerned with the production of luxuries which are peculiarly subject to fluctuation of trade by the elements of season, weather, fashion, and rise or fall of incomes. Finally, a much larger proportion of women's work is done in small factories, in workshops, and in the home, under conditions which are inimical to the effective organization of the workers. Until out-work is much diminished, and effective inspection and limitation of hours in small workshops drives a much larger proportion of women workers into large factories, where closer social intercourse can lay the moral foundation of trade organization in mutual acquaintance, trust, and regard, there is little prospect of women being able to raise their "customary" wage considerably above its present subsistence level, or to obtain any considerable alleviation of the burdensome conditions of excessive hours of labor, insanitary surroundings, unjust fines, etc., from which many women workers suffer.

Women cannot in most of their industries organize effectively under present conditions. In each trade, therefore, the workers employed are surrounded by a permanent mass of potential "black legs" willing to take their labor from urgent need, ignorance, or thoughtlessness, and possessing or able to attain the small skill required. In men's industries, save in the most unskilled, there is not a constant oversupply of labor. In most women's industries there is.

Comparing women's wages with men's we are now able to sum up as follows: The smaller productivity of woman's work makes the possible maximum wage lower; the smaller wants of women make the possible minimum wage lower; the greater weakness of women as competitors, arising chiefly from excess of supply of labor, makes their actual wage approximate to the lower rather than to the higher level.

In regarding productivity as a measure of maximum wage it is necessary to guard carefully against one misapprehension. So far as we are comparing the wage of men and women engaged upon the same work, the smaller wages of the latter may easily be seen to have some relation to the smaller product of their labor. But when productivity is expressed in terms of the selling value of the work, no such measurement is open to us. We are thus thrown back on market value and are told that the reason women get so little is that what they make fetches so low a price. But the circularity of this argument will appear on revising the question and asking, "Why do women's products sell so cheap?" the obvious answer being, "Because the cost of labor in them is so little"—i.e., because women receive low wages. But if we refuse to take selling prices as the measure of productivity, what measure have we? No accurate measure of effort, skill, or efficiency is open if we refuse the scale of the market itself. Yet if we consider the conditions of wages and prices in such "sweated" trades as shirt-making, we cannot but conclude that the consumer gets the advantage of the "sweating"; that is to say, a certain portion of the productivity of the workers passes to the consumer through the agency of low prices. That which might have gone to the shirt-makers in decent wages has gone to the purchaser.

If the above analysis is correct it is not difference of sex which is the chief factor in determining the industrial position of woman. Machinery knows neither sex nor age, but chooses the labor embodied in man, woman, or child, which is cheapest in relation to the degree of its efficiency. Thus the causes which depress woman's industry are chiefly the same which depress the industry of low-skilled men and children. In each case the limits of productivity and "wants" are lower than for skilled men workers, while the terms of their competition keep their wages to the lower level and check the full incentive to efficiency. Setting aside the case of children, who are protected in some degree from the full effects of competition upon the conditions of their employment, the industrial case of women is closely analogous to that of low-skilled men. The physical weakness of the one corresponds with the technical weakness of the other so far as efficiency is concerned; in both cases the low standard of wants gives a low minimum wage, while the excessive supply of labor, rendering concerted action almost impossible, keeps wages close to the minimum.

The growing tendency of modern industry to engage women and children away from their homes is fraught with certain indirect important consequences. When industry was chiefly confined to domestic handicrafts, the claims of home life constantly pressed in and tempered the industrial life. The growth of factory work among women has brought with it inevitably a weakening of home interests and a neglect of home duties. The home has suffered what the factory has gained. Even the shortening of the factory day, accompanied as it has been by an intensification of labor during the shorter hours, does not leave the women competent and free for the proper ordering of home life. Home work is consciously slighted as secondary in importance and inferior, because it brings no wages, and if not neglected is performed in a perfunctory manner, which robs it of its grace and value. This narrowing of the home into a place of hurried meals and sleep is on the whole the worst injury modern industry has inflicted on our lives, and it is difficult to see how it can be compensated by any increase of material products. Factory life for women, save in extremely rare cases, saps the physical and moral health of the family. The exigencies of factory life are inconsistent with the position of a good mother, a good wife, or the maker of a home. Save in extreme circumstances, no increase of the family wage can balance these losses, whose values stand upon a higher qualitative level.

190. TIME WAGES AND PIECE WAGES[1]

The method of payment of wages is often a matter of equal importance with that of the amount paid. The nominal wages may be far from the actual value received by the workingman, if the methods by which they are paid are such as to lend themselves to oppressive conditions.

The simplest form of payment, and that generally applicable, is payment by the time employed, usually by the week or day. Seeing that workers differ much more widely in the quantity and quality of work accomplished in a given time, than they do in wages received, and that the same worker at different times performs different quantities of work, it, of course, follows that there are wide varieties in the rates of pay per unit of effort. The fact, also, that competition compels the employer to reduce his costs in all possible ways, drives him to secure, if possible, as time goes on, more work for the same money, or the same work for less money. But, in the case of payment by the time employed, there is always uncertainty regarding the amount of work which the employee will produce. Time work, in order to be reduced to the lowest basis of cost, requires constant supervision. The average man, whether workman or professional man, is eager to earn as much as possible with as much economy of strength as possible. Hence the progress of American industry has been characterized quite largely by the substitution of piece payments for time payments. Wherever it has been possible, through a minute division of labor, to standardize the product, the piece system is applicable. It does not apply to artistic and diversified work, where quality is desired but, operating upon the individual ambition of each workman, with a goal set before him each day, the piece system is unquestionably adapted to draw out his entire energies. It is quite generally maintained by employers that workingmen paid by the piece produce from 10 to 25 or 30 per cent more of a given product in a given time than when paid by the time. However, from the standpoint of the employer, the tendency of men paid by the piece to scamp the work is often found to be a disadvantage. On this account many large employers, having tried the piece system for a time, have abandoned it and returned to time payments. This they found to be necessary in order to maintain a high standard in the quality of their output. The piece system, for the time being, enabled them to measure up the possible energies of their employees, and when once they had in this way touched bottom and established a standard, they were able thenceforth to apply this standard to the time system.

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[1] From the *Final Report* [XIX] *of the Industrial Commission* (1902), pp. 735–36. [For a specimen schedule of piece-wage rates see Selection 198.—Editors.]

From the standpoint of the workingman the piece system is usually considered the greatest disadvantage. It unquestionably often leads to overexertion, which exhausts the body and mind, and shortens the trade life of the worker. Various witnesses before the Industrial Commission have emphasized this feature. Especially, however, is the piece system considered an injury because it is likely to result in repeated reductions of the price per piece. The employer judges his entire staff by the speed of the most rapid, and consequently, by showing up the earnings of his best men, is able to present a strong argument for reduction along the entire line. It is unquestionably true that there are in all occupations wide ranges of ability among men employed on the same work, and those who acquire exceptional speed are few. Their names and records are well-known throughout the trade or locality. When this minority is taken as a standard and the wages of all reduced proportionally, the piece system undoubtedly becomes not merely a means of greater economy, but also a means of oppression and exploitation.

Again, the piece system is often the means of keeping idle an oversupply of employees. A larger number than is necessary to do the work is kept on the rolls. There are, however, various classes of workers, like the shoe workers and weavers, who occasionally demand the piece system in place of the time system. These are occupations where, by speeding up the machinery, a greater output can be obtained, and if the price paid is not based on the piece, the worker does not share in the advantage of the increased speed.

It must be noted, however, that the time system also under certain conditions may become a system of driving and overexertion. This is true in those unorganized trades, like the clothing trade, or trades where women and children are employed, in which individual bargains are made. Since in such trades there is no minimum scale of wages, the high standard of output of the more rapid worker is applied to those who are slower, and the time wages are reduced accordingly. The time system must necessarily, in the long run, under economical management, become practically a piece system. This is true even though it does not necessarily become a task system where the worker is required, as often happens in the clothing trade, to turn out a given quantity of goods for the standard wages in a given time.

191. WAGE SYSTEMS AND LABOR MANAGEMENT[1]

We come to the special systems designed to correct or to reduce greatly the evils of the straight day wage and the straight piece rate. The principal of these are the Halsey premium plan, the Taylor differential piece rate, the Gantt bonus system, and the Emerson efficiency or individual-effort system. They are placed in this order for reasons that will appear as we go on. And the Halsey premium plan is placed first because it is simply and only a wage system, while the others are rather parts of philosophies and methods of handling labor in which the wage system is only one element.

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[1] Adapted from C. B. Going, *Principles of Industrial Engineering*, pp. 125–42. The McGraw-Hill Book Co., 1911.

The Halsey premium plan bears the strong impress of intimate familiarity with the shop—of complete knowledge of the traditions of the shop, the suspicions of the shop men, and the weaknesses of shop managers; and it seems to be marked further by a conviction of the strength of these long-established institutions and by a tenderness toward disturbing or offending them. It is, in short, a characteristically well-informed effort to get good results, to bring about better conditions, without making any trouble.

The essence of the Halsey premium system is to pay men the established day wage under any circumstances, and then to reward them further by a voluntary extra payment if they do better than the established record of past performances. When the system is introduced there is no necessary or conspicuous change from the way things have always been done. Every man gets his regular day wages on pay day exactly as before. But by reference to past records standard times are set for the various operations upon which the workmen are engaged. In setting these standard times some allowance may be made for the probable shortening of the old records under the incentive the premium system is going to offer; but in the main the controlling consideration is, how long did the job take on the average when it was done by good workmen in the past? These standard times are tabulated, recorded in the office for reference, and the times taken by the men day by day in doing these same jobs, or performing the same operations, are compared with these standards. When any man shortens the standard time on any job after the plan has been put in force, he is credited with a premium, which is equal to his wages at his regular hourly rate for a portion of the time he saved on the job. This portion is usually either 30 or 50 per cent of the time saved. The idea of granting only part of the saved time to the workman is twofold. First, he uses the shop facilities harder—uses more power, wears out more tools, etc., and so the shop should have part of the gain; second, as the employer thus profits as well as the man, he is less likely to be tempted to cut rates when the time is a good deal shortened.

Halsey puts no upper limit on a workman's earnings. However much the man's skill and ingenuity may shorten the times he gets his regular proportion of the gain. One objection sometimes raised to the plan is that as the times are not scientifically set (that is, as the operations are not scientifically studied and figured down to the shortest practicable time), they may sometimes prove to be very much in error against the shop, and the discovery that they are and that the men in consequence are making very high premiums may tempt the employer to cut them down, something in the same way as piece rates are so often cut down.

James Rowan, a member of a prominent firm of engine builders in Glasgow, has put forth a modification of the premium plan, generally known as the Rowan premium, which has as one of its principal objects the protection of the shop against such mistakes as are referred to in the preceding paragraph. The fundamental principle of the Rowan premium plan is that under no circumstances can the workman make more than double his regular day wages. Under the Rowan system the time saved is converted into a percentage of the standard time. The workman then receives, as a premium, this same percentage of the time he actually took. Another way of defining the Rowan premium takes the form of the equation:

$$\frac{\text{Time saved}}{\text{Time set}} \times \text{Time taken} = \text{Premium.}$$

The system is regarded with a good deal of favor in England, but it is not much used in the United States. It pays the workman more largely than the Halsey plan for the earlier (and easier) savings, but as the base upon which the premium is calculated shrinks constantly as time is saved, the man's profit from large savings of time decreases proportionately. The actual premium is the same at 90 per cent time saved as at 10 per cent. There are some other special modifications of the premium plan in use, but it is not important to include them here.

Proceeding now from the wage systems which are merely modes of payment—that is, which do not go beyond the concept of enlisting the workman's interest through the medium of his compensation—we come to another group of methods in which the manner of payment is only one feature of a policy of management, embodying many other ideas and principles.

Prominent among these as one of the early and very widely noticed applications of the ideas upon which other systems of very different philosophy have been built, is the Taylor differential piece rate.

Taylor begins by an ultimate analysis of the job into its elements. Each of these elements is then subjected to thorough expert study to determine the methods and appliances by which a man working steadily at a pace he can maintain without injury can reach maximum performance and minimum time. The workman is then provided with everything necessary to accomplish, in the standard time, the results determined by this study, and he is thoroughly instructed in every step of the operation by minutely detailed written schedules and by expert advisers.

Finally, he is paid at piece rates which are set at two different levels—a low price per piece if the workman fails to do the job in the standard time, and a high price per piece if he does it in the standard time. This is the so-called differential rate. The successful worker is paid not only for the more pieces he turns out, but he is also paid more for each piece. The unsuccessful worker not only makes less pieces to be paid for, but he is paid less for each piece of the smaller number he makes. The money gain to the man who attains standard performance thus becomes very large.

The bonus plan worked out by H. L. Gantt, an associate of Mr. Taylor, has rather more elasticity and has found highly successful application. Like Taylor, Gantt begins with standardization of conditions and accurate time study. That is, he makes it possible for the man to work fast, and decides as nearly as possible just how fast the man should work. The initial engagement of the workman, however, is on a day-pay basis. The workman is sure of regular day wages as a minimum. Under the Taylor piece rate, or any piece rate, the minimum as well as the maximum depends on the number of pieces made. If a man is unlucky and does not finish even one piece he gets nothing. Under the Gantt system he gets day wages however little he may produce. The computations for extra or bonus payment thereafter are on the basis of time. To use Mr. Gantt's own words:

"Under this system each man has his work assigned to him in the form of a task to be done, by a prescribed method, with definite appliances, and to be completed within a certain time. The task is based on a detailed investigation by a trained expert of the best method of doing the work; and the task-setter, or his assistant, acts as an instructor to teach the workmen to do the work in the manner and time specified. If the work is done within the time allowed by the expert, and is up to the standard for quality, the workman receives extra compensation (usually 20 to 50 per cent of the time allowed) in addition to his day's pay. If it is not done in the time set, or is not up to the standard for quality, the workman receives his day's pay only.

"The system is thus in effect a combination of the day-rate and piece-work systems. While learning to do his task the workman is on a day rate; when he has learned to do it the compensation for the task is a fixed quantity, really equivalent to piece-rate. The method of payment, then, is day rate for the unskilled and piece work for the skilled."

Because Halsey and Gantt both grant day wages as a minimum and add something more if a man exceeds standard performance, there is an unfortunately general but ill-informed impression that the systems are much alike. Psychologically—that is, in their interpretation of an appeal to human emotions—they are almost diametrically unlike. They seek similar results (an increase of production) and they offer a similar reward (pay for time saved) but by contradictory policies. Halsey is so desirous not to "stir up things" that he scarcely lets the men know that times are being studied. Gantt is so desirous to make large output possible that he would make most radical and far-reaching changes if necessary to remove causes of inefficiency. Halsey relies entirely on the workman's ability to find ways of shortening the standard time. Gantt analyzes each job scientifically, resolves it into its elements, determines the best way and the minimum time for performing each, and will not even let a workman try to earn bonus until the man has been thoroughly instructed by an expert. Halsey abhors the idea of setting any "task" as the limit a man must reach. Gantt glories in the "task" as a stimulus to effort, and makes such a task the goal a man must reach before bonus begins. Halsey tempts the man on by at least a small premium for even a trifling gain in the time used. Gantt gives no bonus until a very large gain necessary to reach his task limit has been made, and then he gives a great big bonus—25 per cent or 50 per cent all at once.

Halsey avoids class distinctions by making the passage from day-wage earnings only to premium earnings a progress of insensible gradations. Gantt emphasizes class distinction not only by the sharp and wide break between day wages and bonus earning, but also by encouraging outward signs and symbols of bonus earning—encouraging the group of bonus workers and the creation of a bonus society, entry into which is a desirable goal for those who are still in the no-bonus class.

These things are really more important in dealing with men than questions of 20 per cent, or 30 per cent, or 50 per cent premium; and in these things the philosophies of Gantt and Halsey take widely different and opposing views.

The Emerson efficiency or individual-effort system has certain resemblances to both the Halsey premium, and the Gantt bonus plans. It recognizes that there is truth in the psychology of both these systems, different as they are psychologically, and it recognizes advantages in both their methods. Nevertheless, although it has these resemblances it proceeds by a philosophy and a plan of its own, which is distinct and characteristic.

To begin with, it establishes the regular daily-wage scale and system as the basis of employment, thus agreeing with both Halsey and Gantt. Next, it prescribes the standard of production after scientific study, and offers a rather large bonus for reaching it, thus agreeing with Gantt; but it leads up to this bonus reward by a graduated scale of smaller bonuses, thus approaching the Halsey premium plan.

To take up its features in greater detail, let us go back to the measures preliminary to the introduction of the system. As in the case of the Taylor and Gantt policies already described, the arrangement, equipment, and working conditions in the shop or factory are standardized to secure the utmost efficiency and to prevent all wastes and losses that are preventable. Standard times for every operation are then determined and scheduled by the most careful study. In setting these times Emerson apparently gives more weight to averaged past experience than Taylor or Gantt, but is not so closely governed by it as Halsey. Taylor and Gantt, indeed, are inclined to proceed without much regard to what has been the practice in any particular case. They go back to the very best way of doing the thing, and having determined this scientifically for every element, they add these elementary operation times together, allow a certain factor for what might be called the human equation—that is, a margin by which the workman may be permitted to fall short of perfection—add perhaps another factor for imperfection of materials, and so arrive at a final result. Halsey is disposed to make good existing shop practice the standard and not to go very far back of that in setting standard times, but to rely largely on the skill and effort of the individual workman for finding ways of bettering the old records. Emerson's policy inclines rather to the method of taking such records as Halsey would accept as standards, and refining down by deducting for the preventable wastes and losses that have been occurring and that are to be eliminated by the improvements installed. This method, as will be seen, goes upon the supposition that if you take practice as it is, and correct it for all the errors and inefficiencies you can discover and identify, the residue will be automatically self-corrected with such inherent, necessary, and unpreventable inefficiencies and wastes as are innate in conditions and undiscoverable by inspection.

Under the efficiency system, if a workman finishes a job or an operation in the standard time which has been fixed, he receives a bonus of 20 per cent. This rate is about the same as the lower limit usually adopted by Gantt. The Emerson bonus for standard performance, however, is always 20 per cent, while Gantt varies somewhat with the agreeableness and disagreeableness of the work, occasionally running as high as 50 per cent and probably averaging from 30 to 40. Under the efficiency plan, however, if the workman reaches *two-thirds* of the standard performance (that is, if he finishes the job in one and a half times the standard time) he reaches a point beyond which he begins to receive a little extra reward, increasing gradually like the Halsey premium. This reward, however, instead of rising at a uniform rate as the Halsey premium does, rises on a sliding scale. It rises, in fact, as a function of a parabola, the performance being measured along the curve and the bonus being apportioned according to the ordinate. This makes the bonus very small indeed for the early savings of time below time and a half. It merges into the 20 per cent bonus at standard performance. For still further reductions of time, that is, for doing the work in less than standard time set, the workman gets the 20 per cent bonus, *plus all* the time that he saves.

XVI. LABOR PROBLEMS

192. PURPOSES OF THE AMERICAN FEDERATION OF LABOR

A Few of Its Declarations upon Which It Appeals to All Working People to Organize, Unite, Federate, and Cement the Bonds of Fraternity[1]

1. The abolition of all forms of involuntary servitude, except as a punishment for crime.

2. Free schools, free textbooks, and compulsory education.

3. Unrelenting protest against the issuance and abuse of injunction process in labor disputes.

4. A workday of not more than eight hours in the twenty-four hour day.

5. A strict recognition of not over eight hours per day on all federal, state, or municipal work and at not less than the prevailing per diem wage rate of the class of employment in the vicinity where the work is performed.

6. Release from employment one day in seven.

7. The abolition of the contract system on public work.

8. The municipal ownership of public utilities.

9. The abolition of the sweat-shop system.

10. Sanitary inspection of factory, workshop, mine, and home.

11. Liability of employers for injury to body or loss of life.

12. The nationalization of telegraph and telephone.

13. The passage of anti-child labor laws in states where they do not exist and rigid defense of them where they have been enacted into law.

14. Woman suffrage coequal with man suffrage.

15. Suitable and plentiful playgrounds for children in all cities.

16. The initiative and referendum and the imperative mandate and right of recall.

17. Continued agitation for the public bath system in all cities.

18. Qualifications in permits to build, of all cities and towns, that there shall be bathrooms and bathroom attachments in all houses or compartments used for habitation.

19. We favor a system of finance whereby money shall be issued exclusively by the government, with such regulations and restrictions

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[1] From official literature of the American Federation of Labor.

as will protect it from manipulation by the banking interests for their own private gain. . . . .

The above is a partial statement of the demands which organized labor, in the interest of the workers—aye, of all the people of our country—makes upon modern society.

Higher wages, shorter workday, better labor conditions, better homes, better and safer workshops, factories, mills, and mines. In a word, a better, higher, and nobler life.

Conscious of the justice, wisdom, and nobility of our cause, the American Federation of Labor appeals to all men and women of labor to join with us in the great movement for its achievement.

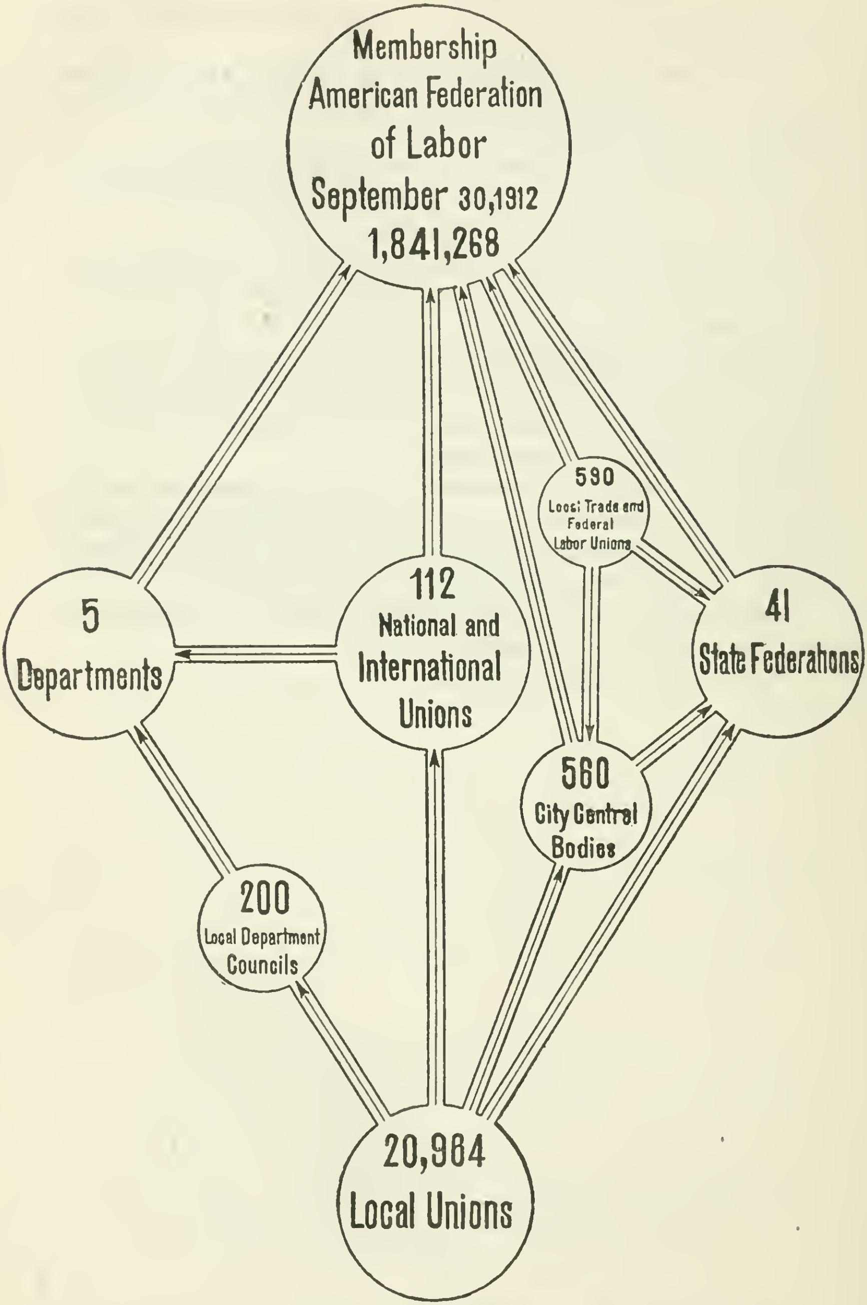
More than two million wage-earners who have reaped the advantages of organization and federation appeal to their brothers and sisters of toil to unite with them and participate in the glorious movement with its attendant benefits. . . . .

We have nearly 1,000 volunteer and special organizers as well as the officers of the unions and of the American Federation of Labor itself always willing and anxious to aid their fellow-workmen to organize and in every other way better their conditions.

For information all are invited to write to the American Federation of Labor headquarters at Washington, D.C.

Wage-workers of America, unite!

193. STRUCTURE OF THE AMERICAN FEDERATION OF LABOR[1]


Membership American Federation of Labor September 30, 1912 1,841,268
5 Departments
112 National and International Unions
590 Local Trade and Federal Labor Unions
41 State Federations
560 City Central Bodies
200 Local Department Councils
20,984 Local Unions

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[1] From the *Report of the Proceedings of the Thirty-second Annual Convention of the American Federation of Labor* (1912), p. 82.

194. AVERAGE MEMBERSHIP IN THE AMERICAN FEDERATION OF LABOR, AS REPORTED OR PAID UPON FOR EACH OF THE YEARS 1897–1912[1]

1897	264,825
1898	278,016
1899	349,422
1900	548,321
1901	787,537
1902	1,024,399
1903	1,465,800
1904	1,676,200
1905	1,494,300
1906	1,454,200
1907	1,538,970
1908	1,586,885
1909	1,482,872
1910	1,562,112
1911	1,761,835
1912	1,770,145

195. UNION CHARTERS ISSUED BY THE AMERICAN FEDERATION OF LABOR, 1897–1912[2]

Year	International	Department	State	Central	Trade Unions	Federal Unions	Total
1897	8	....	2	18	154	35	217
1898	9	....	0	12	129	53	203
1899	9	....	1	35	303	101	449
1900	14	....	5	96	484	250	849
1901	7	....	4	123	575	207	916
1902 (eleven months)	14	....	6	127	598	279	1,024
1903	20	....	3	171	743	396	1,333
1904	11	....	5	99	179	149	443
1905	3	....	1	67	143	73	287
1906	6	....	4	53	167	87	317
1907	3	....	1	72	204	93	373
1908	0	2	4	73	100	55	234
1909	3	2	2	40	77	52	176
1910	2	0	1	83	152	96	334
1911	3	0	0	61	207	55	326
1912	2	1	2	57	149	49	260

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[1] From the *Report of the Proceedings of the Thirty-second Annual Convention of the American Federation of Labor* (1912), p. 80.

[2] *Ibid.*, p. 63.

196. EXTRACTS FROM THE CONSTITUTION OF INTERNATIONAL UNION UNITED MINE WORKERS OF AMERICA, REVISION 1908

PREAMBLE

We hereby declare to the world that our objects are—

First—To secure an earning fully compatible with the dangers of our calling and the labor performed.

Second—To establish as speedily as possible, and forever, our right to receive pay, for labor performed, in lawful money, and to rid ourselves of the iniquitous system of spending our money wherever our employers see fit to designate.

Third—To secure the introduction of any and all well-defined and established appliances for the preservation of life, health, and limbs of all mine employees.

Fourth—To reduce to the lowest possible minimum the awful catastrophies which have been sweeping our fellow-craftsmen to untimely graves by the thousands; by securing legislation looking to the most perfect system of ventilation, drainage, etc.

Fifth—To enforce existing laws; and where none exist, enact and enforce them; calling for a plentiful supply of suitable timber for supporting the roof, pillars, etc., and to have all working places rendered as free from water and impure air and poisonous gases as possible.

Sixth—To uncompromisingly demand that eight hours shall constitute a day's work, and that not more than eight hours shall be worked in any one day by any mine worker. The very nature of our employment, shut out from the sunlight and pure air, working by the aid of artificial light (in no instance to exceed one candle power), would, in itself, strongly indicate that, of all men, a coal miner has the most righteous claim to an eight-hour day.

Seventh—To provide for the education of our children by lawfully prohibiting their employment until they have attained a reasonably satisfactory education, and in every case until they have attained fourteen years of age.

Eighth—To abrogate all laws which enable coal operators to cheat the miners, and to substitute laws which enable the miner, under the protection and majesty of the state, to have his coal properly weighed or measured, as the case may be.

Ninth—To secure, by legislation, weekly payments in lawful money.

Tenth—To render it impossible, by legislative enactment in every state, for coal operators or corporations to employ Pinkerton detectives or guards, or other forces (except the ordinary forces of the state) to take armed possession of the mines in cases of strikes or lockouts.

Eleventh—To use all honorable means to maintain peace between ourselves and employers; adjusting all differences, so far as possible, by arbitration and conciliation, that strikes may become unnecessary.

CONSTITUTION

ARTICLE I

Name, Objects, and Jurisdiction

SECTION 1. This organization shall be known as the United Mine Workers of America.

SEC. 2. The objects of this Union are to unite mine employees that produce or handle coal or coke in or around the mines, and ameliorate their condition by methods of conciliation, arbitration, or strikes.

SEC. 3. This organization shall be composed of International, District, Sub-District, and Local Unions.

SEC. 4. The International Union shall have jurisdiction over all Districts, Sub-Districts, and Local Unions, which shall be governed by this Constitution.

ARTICLE II

Officers and Their Duties

SECTION 1. The officers of the Union shall be one President, one Vice-President, one Secretary-Treasurer, and an Executive Board to be composed of one member from each district under the jurisdiction of the United Mine Workers, each district to elect its members of the International Executive Board, the President, Vice-President, and Secretary-Treasurer to be members of the board by reason of their position.

SEC. 2. The President shall preside at all general conventions of the Union and meetings of the International Executive Board; he shall sign all bills, and official documents, when satisfied of their correctness; he shall, with the consent of the Executive Board, fill, by appointment, all vacancies occurring in any International office, and in like manner may suspend or remove any International officer for insubordination, or just and sufficient cause; he shall, with the consent of the Executive Board, appoint a man, whose duty shall be to collect and compile statistics on the production, distribution, consumption, freight rates, market conditions, and any other matters of interest connected with the coal trade, and from time to time appoint such organizers and workers in the International office or in the field as may be required; he shall send out in circular form to all Locals six weeks previous to International Convention, such recommendations as he may deem wise, to be acted on at International Convention, so delegates to said convention may have the advice of their respective locals on such recommendations; he may attend in person or send an International officer to visit Local Unions, District and Sub-District conventions, and any other places connected with the United Mine Workers of America, when convinced that such services are required; he may appoint one or more officers or members, when deemed necessary, whose duty will be to examine the financial accounts of any Local Union, instruct the officers in the discharge of their duties, and report to the President the standing of each Local Union visited; he shall devote his time and attention to the affairs of the Union; decide all questions of dispute concerning the meaning of the Constitution, and exercise general supervision over its workings, both in the field and in the International offices, as his judgment dictates or the exigencies of the case require; he shall, quarterly, name the pass-word for the use of the Local Unions; he shall appoint each year, on the first day the annual convention meets, a committee of three whose duties shall be to receive and pass upon, as to where all resolutions and amendments to the Constitution presented by the delegates belong, and distribute them to the proper committees direct that have been appointed to act upon them.

Sec. 3. The Vice-President shall act as general organizer, and shall be under the direction of the President, and shall succeed that officer in case of death, resignation, or removal from office.

[Sec. 4 states the duties of the Secretary-Treasurer, which are the usual duties pertaining to such an office.]

Sec. 5. The Executive Board shall constitute an International Board of Conciliation and Arbitration; shall execute the orders of the International Convention, and between conventions shall have full power to direct the workings of the organization, also to levy and collect assessments when necessary. It shall hold in trust for the United Mine Workers of America all money deposited in the name of the Executive Board by the Secretary-Treasurer, but under no circumstances shall said money be drawn upon except upon the written order of two-thirds of the members of the International Executive Board.

Sec. 6. The International Executive Board shall have power to order a general strike or suspension by a two-thirds vote at any time during the year that they deem necessary, and each member shall have one vote, and one additional vote for every two thousand members in good standing they represent, or a majority fraction thereof; provided, that all District Presidents, Vice-Presidents, and Secretaries be called into joint conference for consideration before any general strike or suspension order be issued.

Sec. 8. The term of all elective officers shall be from April 1 to March 31 of each year.

ARTICLE III

Qualifications and Salary of Officers

Section 1. Any member in good standing in the organization shall be eligible to hold office in the International Union, provided he is not a salaried officer of a Sub-District or District at the same time, and provided he has never been found guilty of misappropriating any funds of the organization intrusted to his care, and has been a member of a Local Union for one year prior to his election.

Sec. 2. The President's salary shall be $3,000 per annum, and all legitimate expenses; Vice-President, $2,500 per annum, and all legitimate expenses; Secretary-Treasurer, $2,500 per annum, and all legitimate expenses; and the Editor of the official organ, viz., *The United Mine Workers' J[illegible]rnal*, $1,500 per annum; Executive Board members, $4.00 per day, and all legitimate expenses, when employed by the President to work in the interest of the United Mine Workers of America.

Sec. 3. The compensation of Tellers, Auditing and Credential Committee shall be $4.00 per day, and legitimate expenses for all time actually employed in the performance of their duty.

ARTICLE IV

Revenues

Section 1. Every Local Union shall pay direct to the International Secretary-Treasurer a per capita tax of 25 cents per month per member, and such additional assessments as may be levied by an

International Convention, or a referendum vote of the members of the United Mine Workers, or by the International Executive Board, for two months pending a referendum vote, payments to be based upon the amount of dues collected in each month by the Local Union. Boys under 16 years of age shall be known as half-members and shall pay one-half as much tax and assessment as full members.

SEC. 2. The Local Secretary shall fill out and forward to the International and District Secretary-Treasurer, on or before the 25th of each month, a report of all members in good standing in the Local Union on the first day of that month, together with all taxes and assessments due to the International and District offices from the same.

SEC. 6. No Local Union shall be exonerated from the payment of per capita tax or assessments, unless their members have been idle for one month or more.

SEC. 8. In all cases where Local Unions desire to be exonerated from the payment of tax and assessments, a request must be signed by the President, Secretary, and Mine Committee. In such cases the President, Secretary, and Committee must attach their individual signatures; but no Local Union shall be exonerated from such payment until their request has been approved by the District and International Secretary, and the request must be made each month in place of the regular monthly financial report as long as the members remain idle.

SEC. 9. The local monthly dues to be paid by each member shall not be less than 50 cents per month, together with such assessments as may be levied by the different branches of the U.M.W. of A.

SEC. 10. The initiation fee shall be $10.00 for practical miners and for non-practical men it shall be left to the discretion of the district where applications for membership are made. Sons of members between fourteen and sixteen years of age shall pay an initiation fee of $2.50.

SEC. 11. The funds of the organization shall be used for the purpose of assisting those who are in need from idleness or distress, when the payment of the same has been approved by the International Executive Board.

ARTICLE V

Conventions and Representation

SECTION 1. The International Convention shall be held annually on the third Tuesday in January, at such place as may be determined upon by the preceding convention. Special conventions shall be called by the President, when so instructed by the Executive Board, or at the request of five Districts.

SEC. 2. Representatives to the International Convention shall be elected directly from Local Unions and shall have one vote for one hundred members or less, and an additional vote for each one hundred members or majority fraction thereof, but no representative shall have, or be credited by the Credential Committee with, more than five votes, nor shall said Credential Committee transfer votes to any delegate not duly authorized by the Local Union.

SEC. 3. No Local Union shall be entitled to representation in the International Convention that is in arrears for dues or assessments for two months preceding the one in which the International Convention is held and which has not in every particular complied with the Constitution of the District in which said Local Union may be located, or which has less than ten members. . . . .

[Secs. 4, 5, 6 cover further details concerning representation of locals in the convention.]

SEC. 7. Any member of the United Mine Workers of America accepting a position other than that of a miner or mine worker shall not be eligible to act as representative to any Sub-District, District, or International Convention, or represent the United Mine Workers in a central body or State Federation of Labor Convention. . . . .

SEC. 9. Delegates to the International Convention shall be paid railroad fare to and from the convention on [a stated] basis. . . . .

SEC. 11. Local Unions, having been organized one year prior to the annual convention and having 100 members or more in good standing, shall send a representative to the annual convention of the United Mine Workers of America, or pay to the International Secretary-Treasurer a fine of $25.00 for each 100 members in good standing in the Local Union, unless exonerated by the International Executive Board. This section is not to apply to Local Unions whose members are on strike or whose members are idle for one month or more prior to the convention, on account of a suspension or closing down of the mines, nor does this section prevent Local Unions of less than 100 members holding meetings jointly and jointly sending a delegate to represent such Locals in the International Convention.

ARTICLE VI

Nominations and Elections

SECTION 1. The President, Vice-President, Secretary-Treasurer, Auditors, Tellers, and Delegates to the American Federation of

Labor shall be elected by a majority of the popular vote of the members in good standing in the International, District, and Local organizations.

[The procedure of elections is covered in detail in sections 2–9. It involves nomination and election by the locals, which use official blanks supplied by the International Secretary-Treasurer. Election is on the basis of a majority of the total vote cast.]

ARTICLE VII

Cards

SECTION 1. Local Unions shall provide each member with a Due Card, upon which the dues and assessments paid by the member shall be entered, which shall be his receipt for the same.

SEC. 2. Due Cards shall not admit any person to membership from one Local to another, and to protect the membership of individuals who are unable to pay their dues because of no Local existing where they reside, the International, District, and Sub-District Secretaries shall, upon the payment of dues and assessments by said member, issue the usual cards for the same; provided that this shall not apply to a member living in a locality where a Local Union is in existence.

SEC. 3. No person a member of the organization, who holds a Due or Transfer Card showing him to be a member in good standing, shall be debarred or hindered from obtaining work on account of race, color, creed, or nationality, and any person who shall be found guilty of discriminating against a fellow member on account of his race, color, creed, or nationality shall be fined not less than $5.00 nor more than $25.00, and any Local that may be found guilty of such discrimination for the same reasons, shall be fined not less than $10.00 nor more than $50.00.

SEC. 4. Any member desiring to leave the mine where his Local in located and work elsewhere shall immediately make application to the Secretary of the Local for a Transfer Card. . . . .

SEC. 6. No card shall be issued to any member when the Local is three or more months in arrears to the International, District, or Sub-District for dues or assessments. Officers of any Local Union issuing cards in violation of any Section of Art. VII shall be fined $10.00 for each card issued, the fine to be collected in the same manner as dues and assessments.

SEC. 11. The International Secretary-Treasurer shall prepare and send out monthly a statement of all Locals three months or more in arrears for dues and assessments, and no Local Union shall refuse to accept a Transfer Card from any Local unless it appears on said list as being in bad standing. Local Unions on strike shall be exempt from the provisions of this section.

SEC. 15. Any member going to work in a non-union or unfair mine shall forfeit his membership and all rights and privileges guaranteed by such membership, unless such work was done under a dispensation granted by the president of the District where he has secured employment.

SEC. 16. Any member holding a Transfer Card shall not be entitled to strike benefits (where such are paid) from the Local Union issuing the card, until said card has been redeposited in the Local Union issuing it and then only from the date the card was deposited. The acceptance of such card shall be contingent on the rules governing the acceptances of cards in the Districts where such card is deposited.

ARTICLE VIII

Supplies

SECTION 1. The price of a charter and supplies shall be $15, and shall consist of one charter, one press seal, one ledger, one recorder, one book of orders on the Treasury, one Treasurer's receipt book, fifty Constitutions, fifty Due Cards, one book of Transfer Cards, four manuals, one gavel, one copy of the proceedings of the last annual convention, and such documents as the International Secretary-Treasurer may, from time to time, desire to send out.

SEC. 2. Due Cards, Transfer Cards, and other supplies shall be furnished by the International Union to the Local Unions at such rates as the International Executive Board may determine.

ARTICLE IX

Organizers

SECTION 1. Commissions as Organizer shall be signed by the President and attested by the Secretary-Treasurer.

SEC. 2. Organizers not under salary from the International Union may retain $7 from the charter fees of new Locals organized by them, to pay them for their time, and shall send the other $8 to the International office with their report.

ARTICLE X

Strikes

SECTION 1. When trouble of a local character arises between members of a Local Union and their employers, the officers of said Local shall endeavor to effect an amicable adjustment, and failing in this they shall immediately notify the officers of the District to which the affected Locals are attached, and said District officers shall immediately investigate the cause of complaint; and failing to effect a peaceable settlement on a basis that would be fair and just to aggrieved members, finding that a strike would best serve the interests of the locality affected, they may order the inauguration of a strike, but no local strike shall be legalized or supported by a District unless its inauguration was approved by the officers of the District or by the International Executive Board, upon an appeal taken by the aggrieved members from the decision of the District officers; any Local Union striking in violation of the above provisions shall not be sustained or recognized by the International officers.

Sec. 2. Before final action is taken by any District upon questions that directly or indirectly affect the interests of the mine workers of another District, or that require a strike to determine, the President and Secretary of the aggrieved District shall jointly prepare, sign, and forward to the International President a written statement setting forth the grievance complained of, the action contemplated by the District, together with the reasons therefor, and the International President shall, within five days after the receipt of such statement, either approve or disapprove of the action contemplated by the aggrieved District, and such approval or disapproval together with the reasons therefor, shall be made in writing, and a copy forwarded to the Secretary of the complaining District. Should the action contemplated by the aggrieved District receive the approval of the International President, the District shall be free to act, but should the International President disapprove the action contemplated, the District may appeal to the International Executive Board, which shall be convened to consider such appeal within five days after its receipt by the International Secretary. Until the International President has approved or the International Executive Board has sustained the appeal, no District shall be free to enter upon a strike unless it shall have been ordered by an International Convention.

Sec. 3. When any member of the United Mine Workers is suspended or discharged, it shall be the duty of the Mine Committee to immediately investigate the case, and if the member discharged is not guilty of an offense justifying the same, the grievance shall immediately be reported to the Sub-District President in writing, under the seal of the Local, and if, upon investigation, the report of the Local Committee is found correct, the Sub-District and District

Presidents shall immediately insist upon the reinstatement of the suspended or discharged member.

SEC. 4. The International officers shall, at any time they deem it to the best interests of mine workers in a District that is idle, for just and sufficient reasons, order a suspension in any other District or Districts that would in any way impede the settlement of the District affected; provided, that such action would conserve to the best interests of the United Mine Workers of America.

ARTICLE XI

Miscellaneous

SEC. 6. No Local Union shall divide the funds of the Union at any time among its members, and should any Local Union disband or cease to work for any cause, all moneys, supplies, and other properties belonging to the Local Union shall be turned over to the International organization. The above provision shall not be construed to prevent the use of the funds for legitimate purposes.

Any Local, Sub-District, or District Union using the funds intrusted to its care for other than legitimate purposes shall be fined double the amount so used. Such fines shall be paid into the International Treasury, the Sub-Districts to collect fines from the Locals, the Districts from the Sub-Districts, and the International from the Districts.

Any Local, Sub-District, or District officer misappropriating funds intrusted to his care shall not be eligible to again hold office.

SEC. 7. Any National, District, or Sub-District officer accepting a salaried political office, other than that of a state legislator, member of Congress, member of Local School Boards, city, borough, or town council or local poor boards, shall resign his office with the United Mine Workers immediately upon his acceptance of the same.

SEC. 8. This Constitution may be amended by a majority of all votes cast at the annual convention.

SEC. 9. All Local Unions shall set aside one meeting each month at which the agreement and constitution governing same shall be read and discussed.

ARTICLE XII

Districts

SECTION 1. Districts shall be formed with such number and territory as may be assigned them by the International officers, and shall be subjected to the jurisdiction, laws, rules, and usages of the International Union.

Sec. 2. Districts may adopt such laws for their government as they may deem necessary, provided they do not conflict with the International Union.

ARTICLE XIII

Sub-Districts

Section 1. Sub-Districts may be formed with such number and territory as may be assigned them by the Districts to which they are attached, and shall be subject to the jurisdiction, laws, rules, and usages of the International and District Unions.

Sec. 2. Sub-Districts may adopt such laws for their government as they may deem necessary, provided they do not conflict with International and District Constitutions or agreements entered into.

ARTICLE XIV

Locals

Section 1. Local Unions shall be composed of miners, mine laborers, and other workmen, skilled and unskilled, working in and about the mines, except mine manager, top boss, and persons engaged in the sale of intoxicating liquors, and shall be given such numbers as the International Secretary-Treasurer may assign them.

Sec. 2. All Locals shall be under the jurisdiction of the International, District, and Sub-District Unions, and may make such laws for their government as they deem necessary, provided they do not conflict with the International, District, and Sub-District Constitutions or agreements entered into. Any Local Union or members thereof violating this section shall be subject to a fine of not less than $5.00.

Sec. 3. All Local Treasurers and such Secretaries as handle the finances of the organization shall furnish sufficient security for the faithful performance of their duties, the amount of said security to be determined by the Local Union.

Sec. 4. All local officers and committees shall be elected the last meeting of June of each year, by a majority vote of the members present, and shall serve one year, or until their successors are elected and qualified.

Sec. 5. All Checkweighmen employed by members of the United Mine Workers shall be members of the United Mine Workers six months prior to their election, except newly organized locals, and voted for and elected by those who pay to maintain them. Notice of election for Checkweighman shall be posted in some conspicuous place at the mines where Checkweighman is to be employed at least three days before the time set for such election. It shall be the duty of such Checkweighman to keep a record of all men employed in and around the mine. Under no consideration shall a Checkweighman be considered an officer of the Local Union. The term for which a Checkweighman shall serve shall be left to the discretion of those who employ him. The above will not prevent any local officer from acting as Checkweighman.

ARTICLE XV

SECTION 1. The *United Mine Workers' Journal*, official organ of the organization, shall be issued on Thursday of each week from headquarters. It shall be a medium for circulating the news of interest to the craft; shall publish from time to time the important transactions of the organization, general mining and trade news, together with copies of official circulars and financial reports, and other matters of general interest. It shall be neutral in politics, non-sectarian in religion, dignified in tone, and a consistent advocate of the principles of modern trades organizations.

SEC. 3. The business management of the *Journal* shall be under the supervision of the International Secretary. . . . .

SEC. 4. All Local Unions shall subscribe for one copy of the *Journal*, paying for it in advance, and Secretaries are hereby instructed to examine every issue and read all official circulars to the members that are published therein.

197. JOINT INTERSTATE AGREEMENT OF OPERATORS AND MINERS[1]

It is hereby agreed between the representatives of the Southwestern Interstate Coal Operators' Association and the representatives of Districts 14, 21, and 25 of the United Mine Workers of America, that the existing interstate, district, and Texas agreements be continued without any change or addition whatever, except as follows:

Day wage, yardage, dead and deficient work to be reduced throughout 5.55 per cent, except the day-wage scale in Texas mines, which shall be reduced one-half the above amount.

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[1] Text of the official agreement.

Interstate and district scales to be signed simultaneously at Pittsburg and to expire March 31, 1906.

INSIDE DAY-WAGE SCALE

Track layers	$2.42
Track layers' helpers	2.23
Trappers	1.07
Bottom cagers	2.42
Drivers	2.42
Trip riders	2.42
Pushers	2.42
Water haulers and machine haulers	2.42
Timbermen, where such are employed	2.42
Pipemen for compressed air plants	2.36
All other inside day labor	2.23
Spragging, coupling, and greasing, when done by boys	1.65
Shaft sinkers	2.64
Shot firers under normal conditions	2.83

OUTSIDE DAY-WAGE SCALE

First blacksmiths	$2.83
Second blacksmiths	2.60
Blacksmiths' helpers	2.23
Carpenters	2.30

(Provided that in no case will there be any reduction from the rate of wages now paid to carpenters of more than 5.55 per cent.)

All other outside day labor not enumerated	$1.91

Provided that any class of outside day labor now receiving $2.02½ or more per day shall be reduced 5.55 per cent. This provision only applies to outside day labor not otherwise enumerated.

SCALE FOR ENGINEERS

Engineers, first class, 500 tons and over, per month	$74.62
Second class, 300 to 500 tons, per month	68.95
Third class, 300 tons or less, per month	61.40

Tail rope and slope engineers shall be reduced 5.55 per cent below present wages.

The minimum rate for tail rope and slope engineers shall be $2.25 per day, or $58.56 per month; provided, further, that the maximum rate for tail rope and slope engineers shall be $2.55 per day, or $66.12 per month. Twenty-six days to constitute a month's work and nine hours to constitute a day's work. All overtime in excess of nine hours to be paid for at a proportionate rate per hour.

The tonnage shall be determined by the average for the month of November, 1902, and based upon mine-run coal; but in no case shall any reduction from the present wages be made.

This scale of wages applies only to mines in operation at least one year, and in all new mines the wages of the engineers shall be advanced with the increased tonnage until the maximum rate is reached; provided, that in no case shall engineers employed at new mines receive less than $2.25 per day; also that in no case shall engineers, firemen, or pumpers be interfered with or asked to cease work by any local committee or local union official during the life of this contract.

The mining prices inside and outside day-wage scale (except engineers) provided for in this contract is based upon an eight-hour workday.

RULES AND REGULATIONS

Eight-Hour Day

All classes of day labor are to work full eight hours, and the going to and coming from the respective working places is to be done on the day hand's own time. All company men shall perform whatever day labor the foreman may direct. An eight-hour day means eight hours' work in the mines at the usual working places, exclusive of noon time—which shall be one-half hour—for all classes of inside day labor. This shall be exclusive of the time required in reaching such working places in the morning and departing from the same at night.

Drivers shall take their mules to and from the stables, and the time required in so doing shall not include any part of the day's labor; their time beginning when they reach the change at which they receive empty cars—that is, the parting drivers at the shaft bottom and the inside drivers at the parting—and ending at the same places; but in no case shall a driver's time be docked while he is waiting for such cars at the points named. The inside drivers, at their option, may either walk to and from their parting, or take with them, without compensation, either loaded or empty cars to enable them to ride. This provision, however, shall not prevent the inside drivers from bringing to and taking from the bottom regular trips, if so directed by the operator, provided such work is done within the eight hours.

When the stables are located outside the mine the companies agree to deliver the mules at the bottom of the shaft in the morning and relieve the drivers of the mules at the bottom of the shaft at night.

When the men go into the mine in the morning they shall be entitled to two hours' pay whether or not the mine works full two hours; but after the first two hours the men shall be paid for every hour thereafter, by the hour, for each hour's work or fractional part thereof. If for any reason the regular work cannot be furnished the inside day laborers for a portion of the first two hours, the operators shall furnish other than the regular labor for the unexpired time.

Penalties for Loading Impurities

In order to insure the production of clean, marketable coal, it is herein provided that if any miner shall load with his coal sulphur, bone, slate, blackjack, or other impurities, he shall, for the first offense, be notified by the mine foreman; for the second offense he may be suspended for one day; for the third and each subsequent offense occurring in any one month he may be suspended for three days; provided, that if in any case it is shown that a miner maliciously or knowingly loads impurities, he shall be subject to discharge. It is further agreed that if any miner has been suspended and claims that an injustice has been done him, the matter shall be taken up for investigation and adjustment in the manner provided in section three of this agreement.

Duties of Pit Committee

a) The duties of the pit committee shall be confined to the adjustment of disputes between the pit boss and any member of the U.M.W. of A. working in and around the mines, arising out of this agreement or any district or sub-district agreement made in connection therewith, when the pit boss and said miner or mine laborer have failed to agree.

b) In case of any local trouble arising in any mine through such failure to agree between the pit boss and any miner or mine laborer, the pit committee and the pit boss are empowered to adjust it, and in the case of their disagreement it shall be referred to the superintendent of the company and the district president of the U.M.W. of A., or such person as he may designate to represent him; and should they fail to agree it shall be referred to the commissioner of the Southwestern Interstate Coal Operators' Association and the district president of the U.M.W. of A. for adjustment; and in all cases the mines, miners, mine laborers, and parties involved must continue at work, pending an investigation and adjustment, until a final decision is reached in the manner above set forth.

c) If any day men refuse to continue at work because of a grievance which has or has not been taken up for adjustment in the manner provided herein, and such action shall seem likely to impede the operation of the mine, the pit committee shall immediately furnish a man or men to take such vacant place or places at the scale rate, in order that the mine may continue at work; and it shall be the duty of any member or members of the United Mine Workers who may be called upon by the pit boss or pit committee to immediately take the place or places assigned to him or them in pursuance hereof.

d) The pit committee, in the discharge of its duties, shall under no circumstances go around the mine for any cause whatever, unless called upon by the pit boss or by a miner or a company man who may have a grievance that he cannot settle with the boss. Any pit committeeman who shall attempt to execute any local rule or proceeding in conflict with any provision of this contract, or any other made in pursuance hereof, shall be forthwith deposed as committeeman. The foregoing shall not be construed to prohibit the pit committee from looking after the matter of membership dues and initiations in any proper manner.

e) Members of the pit committee employed as day men shall not leave their places of duty during working hours except by permission of the operator, or in cases involving the stoppage of the mine.

f) The right to hire and discharge, the management of the mine, and the direction of the working force are vested exclusively in the operator, and the U.M.W. of A. shall not abridge this right. It is not the intention of this provision to encourage the discharge of employees or the refusal of employment to applicants because of personal prejudice or activity in matters affecting the U.M.W. of A. If any employee shall be discharged or suspended by the company and it is claimed that an injustice has been done him, an investigation, to be conducted by the parties and in the manner set forth in paragraphs *a* and *b* of this section, shall be taken up promptly, and if it is proven that an injustice has been done, the operator shall reinstate said employee and pay him full compensation for the time he has been suspended and out of employment; provided, if no decision shall be rendered within five days the case shall be considered closed, in so far as compensation is concerned, unless said failure to arrive at a decision within five days is owing to delay upon the part of the operator, in which case a maximum of ten days' compensation shall be paid.

Local Demands

There shall be no demands made locally by either operators or miners which are in conflict with this agreement or any district or sub-district agreement made prior to September 1, 1904; and there shall be no provision imposed violating the same. Any local member, official, or committee shutting down a mine without orders from the district president or district executive board shall be fined in the manner provided for in the national constitution of the U.M.W. of A., and such additional penalties may be imposed as are now or may be provided for in the constitutions of the various district organizations. All such fines are to be collected by the companies and paid into the district treasury of the U.M.W. of A. Should any operator violate this agreement, or any provision hereof, such operator or company shall be fined one hundred dollars ($100), said fine to be paid into the treasury of the Southwestern Interstate Coal Operators' Association.

Payment of Wages

The operators agree to pay twice a month, the dates of payment to be determined by the district joint convention; and these payments are to be made at the office nearest to the mine wherein or at which the employees are employed; provided, however, that this office shall be located not more than two miles from such mine.

Check-off

The operators will recognize the pit committee in the discharge of their duties, as provided in this agreement, and agree to check off dues, assessments, fines, and initiations from all miners and mine laborers when desired. In order to protect the companies, the U.M.W. of A. agrees, when the companies so demand, to furnish a collective and continuous order authorizing the companies to make such deductions. The companies agree to furnish the miners' local representatives a monthly statement showing separately the amount of dues, assessments, fines, and initiations collected. In case any fine is imposed the propriety of which is questioned, the amount of such fine shall be withheld by the operator until the case has been taken up for adjustment and a decision reached.

It is agreed that the miners may employ a checkweighman to see that coal is properly weighed and a correct record made thereof, and when such checkweighman is employed the companies shall furnish him a check number, and he shall credit to his number such portion of each miner's coal as he may be authorized to do by the local union. It is understood that the above provision shall not affect the arrangements now existing at any mine where a check number is issued in the name of the local union, and dues, assessments, fines, and initiations collected by this method.

Measurements

It is agreed that measurements of entries, brushing, room turning, and deadwork shall be made semi-monthly, and payment in full shall be made for such work in the same manner as that in which other work is paid for.

Equal Turn

The operator shall see that an equal turn is offered each miner and that he be given a fair chance to obtain the same. The checkweighman shall keep a turn bulletin for the turn keeper's guidance. The drivers shall be subject to whomever the mine manager shall designate as turn keeper in pursuance hereof.

Deaths and Funerals

In the case of an instantaneous death by accident in the mine, the miners and underground employees shall have the privilege of discontinuing work for the remainder of that day; but work, at the option of the operator, shall be resumed the day following and continue thereafter. In case the operator elects to operate the mine on the day of the funeral of the deceased, as above, or where death has resulted from an accident in the mine, individual miners and underground employees may, at their option, absent themselves from work for the purpose of attending such funeral, but not otherwise. And whether attending such funeral or not, each member of the U.M.W. of A., employed at the mine at which the deceased member was employed, shall contribute fifty (50) cents and the operator twenty-five ($25) dollars for the benefit of the family of the deceased or his legal representatives, to be collected through the office of the company. In the event that the mines are thrown idle on account of the miners' or other employees' failure to report for work in the time intervening between the time of the accident and the funeral, or on the day of the funeral, then the company shall not be called upon for the payment of the twenty-five ($25) dollars above referred to.

Except in cases of fatal accidents, as above, the mine shall in no case be thrown idle because of any death or funeral; but in the case of the death of any employee of the company or member of his family, any individual miner may, at his option, absent himself from work for the purpose of attending such funeral, but not otherwise.

Doctor

No deduction shall be made for doctors, unless such deduction is authorized by the individual employee.

Condition of the Mine

The company shall keep the mine in as dry condition as practicable, by keeping the water off the road and out of the working places. When a miner has to leave his working place on account of water, through the neglect of the company, they shall employ said miner doing company work when practicable, and provided that said miner is competent to do such work, or he shall be given another working place until such water is taken out of his place.

Provisions for Injured

The operators shall keep sufficient blankets, oil, bandages, etc., and provide suitable ambulance or conveyance, readily available at each mine to properly convey injured persons to their homes after an accident.

Powder

The price of powder shall be $2.00 per keg during the term of this contract.

1906 Joint Convention

It is agreed that the Southwestern Interstate Coal Operators' Association and the representatives of the United Mine Workers of America shall meet in the city of Indianapolis, Indiana, on the 25th day of January, 1906, at 10 o'clock A.M.

198. A PIECE-WORK WAGE-SCALE AGREEMENT[1]

CHINA

HANDLING

Coffee Pots, all sizes	$0.20
Cups, ordinary shapes	04½
“ Tulip	05
“ A. D. Coffees, Special	07
Jugs, Whiskey	08
Mugs, all shapes	06

Mustards	$0.04
Sugars, 24s	08
“ 30s	08
“ 36s	08
“ 42s	08

JIGGERING

Basins, Plain, 9s	$0.35
Butters, Individual, Plain	03½
Butters, Loose Drainer	50
“ Fast Drainer	55
“ Covered, complete	60
Bowls, Oyster	04
Bowls, Punch, 9 inch	28
“ “ 10 inch	28
“ “ 11 inch	28
“ “ 12 inch	28
“ “ 13½ inch	40
“ “ 15 inch	40
Cake Covers, made for turners	04
“ “ to be sponged	06
Compotes, all sizes, foot thrown	10
Cups, with ball, Turned...2½ to	04
Fruits, Plain	03½
Ice Creams, Plain	03½
Ice Tubs, 8½ inch, Turned	40
“ 9½ inch	45
“ 10 inch	50
Nappies, Plain, 3 inch	07
“ “ 4 inch	07
“ “ 5 inch	07
“ “ 6 inch	10
“ “ 7 inch	10
“ “ 8 inch	10
“ “ 9 inch	10
Nappies, Fluted, 5 inch	13
Plates, Flat, Plain, 4 inch	04
“ “ “ 5 inch	04

Plates, Flat, Plain, 5½ inch	$0.05
“ “ “ 6 inch	05
“ “ “ 6½ inch	06
“ “ “ 7 inch	07
“ “ “ 7½ inch	07
“ “ “ 8 inch	08
Plates, Flat, Festoon, 4 inch	05
“ “ “ 5 inch	05
“ “ “ 5½ inch	06
“ “ “ 6 inch	06
“ “ “ 6½ inch	07
“ “ “ 7 inch	07
“ “ “ 7½ inch	08
“ “ “ 8 inch	08
Plates, Deep, Plain, 5 inch	05
“ “ “ 5½ inch	06½
“ “ “ 6 inch	06
“ “ “ 6½ inch	07
“ “ “ 7 inch	07
“ “ “ 7½ inch	08
“ “ “ 8 inch	08
Plates, Deep, Festoon, 5 inch	06
“ “ “ 5½ inch	07
“ “ “ 6 inch	07
“ “ “ 6½ inch	08
“ “ “ 7 inch	08
“ “ “ 7½ inch	09
“ “ “ 8 inch	09
Plates, Coupé Soup, 6 inch	06
“ “ “ 7 inch	06½
Saucers, Plain	04

THROWING

Brush Vases	Net	$0.09
Coffee Mugs	Net	09
Coffee Pots, Vienna, 1s	Net	13
“ “ “ 2s	Net	13
Compotes, Feet, 5 inch	Net	10
“ “ 6 inch	Net	10

Compotes, Feet, 7 inch	Net	$0.10
“ “ 8 inch	Net	12
“ “ 9 inch	Net	12
Creams, Vienna, 1s	Net	05
“ “ 2s	Net	06
“ “ 3s	Net	07

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[1] From the official booklet, *Wage Scale and Agreements between the United States Potters' Association and the National Brotherhood of Operative Potters, Adopted October 1, 1905.*

[The passage here reproduced is only a small portion of the original document. The complete text of the agreement covers some fifty pages.—EDITORS.]

Custards, small	Net	$0.05
" large	Net	06
Egg Cups, Double	Net	06
" Single	Net	05
Match Safes, Cornick, 1s	Net	09
" " " 2s	Net	09
" " " 3s	Net	09
Match Safes, Flat Footed	Net	18
" " French B, 1s	Net	11
" " " 2s	Net	15
Molasses Cans, Barrel	Net	11
Mustard Barrel and Cover	Net	08
Mustards, Vienna	Net	08
Mustards, New York	Net	$0.11
Mugs, 42s	Net	04
" 36s	Net	05
" 30s	Net	06
" 24s	Net	07
Q. M. D. Cans	Net	25
Spittoons, small	Net	25
" large	Net	30
Sugars, Round, Covered, all sizes	Net	13
Whiskeys, 1 quart	Net	20
" 1 pint	Net	15
" ½ pint	Net	11

TURNING

Bowls, Oyster, Single Thick, 42s	$0.07½
" " " " 36s	08½
" " " " 30s	09½
" " " " 24s	10½
Bowls, St. Dennis, 36s	06
" " 30s	06½
" " 24s	07
Bowls, Tulip, 30s	08½
" " 36s	07½
" " 42s	07
Cake Covers, knobbed	15
Coffees, Extra Thick	05½
" Culot	06
" A. D. Culot	05
Coffee Pots, Vienna, complete	20
Compotes, 5 and 6 inch	25
" 7 and 8 inch	30
" 8½ inch	35
" 9 inch	40
Compotes, Sticking up	18
Creams, No. 1	09
" No. 2	09
" No. 3	10
Cups, Custard	09
Cups, Tea, Single Thick	04
" Coffee, "	04½
" Tea, Double Thick	04½
" Coffee, "	05
" A. D., Thin	04½
Cups, Tulip, Teas	04½
" " Coffees	05
Egg Cups, Double	10
" Single	09
Ice Tubs, Small	$0.35
" Large	45
" Footed	60
Jugs, Whiskey	30
Match Safes, No. 1	12
" " No. 2	11
" " No. 3	10
Molasses Cans	20
" " Extra Large	35
Mugs, Cable, 42s	09
" " 36s	09
" " 30s	10
" " 24s	11
Mustards, Bodies	08–09
" Covers	08–09
Oysters, Gov	10½
" Plain	08½
Salads, 5 inch	12
" 6 inch	14
" 7 inch	16
" 8 inch	18
" 9 inch	20
Spittoons, Low	30
" High	35
Sugars, Hotel, complete	17
" " Covers	08½
Sugars, Round, 42s, complete	16
" " 36s, "	17
" " 30s, "	18
" " 24s, "	19
" " Covers, 36s	08½
" " " 30s	09
" " " 24s	09½

199. THE ATTITUDE OF THE TYPOGRAPHICAL UNION TOWARD MACHINERY[1]

It is probably not far wrong to say that trade unionists universally regard the introduction of new machinery as a misfortune. With the possible exception of a very few industries, like the cotton manufacture, in which machine production has already been long and highly developed, a new machine always appears to the workingman as a displacer of men, a creator of unemployment, a depresser of wages. Trade-union leaders, even when they express their acceptance of the advance of machine production as a necessary feature of social progress, usually manifest the feeling that, if it is not inevitably at the expense of the workingman, it at least increases the difficulty of maintaining his economic position. It is doubtful whether any union which felt strong enough to keep machinery out of its trade ever submitted without a contest to the introduction of it. The experience of long years has taught the unions, however, that in general the introduction of machinery cannot be prevented, and direct attempts to keep it out are now comparatively few.

The unions that have fared best in their dealings with machinery are those that have frankly and promptly recognized the inevitableness of it, and have devoted their energies, not to the hopeless task of preventing the use of it, but to regulating the manner of use. Probably no union in this country furnishes a better example of a wise policy toward machinery than the International Typographical Union.. When the typesetting machines began to be introduced, the union promptly accepted them as inevitable, and only insisted that they be operated exclusively by members of the organization, and on union terms. If the attempt had been made to keep the machines out of printing offices, the fate of the hand compositors might possibly have been comparable with that of the hand weavers, who tried a hundred years ago to compete with the power loom. The union would have been driven out of all important printing offices, the machines would have been run by nonunion hands; wages, both of machine operators and of hand compositors, would have been cut, and hours of labor would have been lengthened. By the policy which the union adopted the number of its members who were thrown out of employment by machines was greatly diminished, wages were maintained and gradually raised, hours were gradually shortened. The union has been able to secure for its members a share of the benefits of the machine, instead of seeing all its benefits, together with a portion of the advantages which they themselves had previously enjoyed, divided between the employing printers and the community at large. The wage scales for machine operators are uniformly maintained at least as high as those of hand compositors, and in many cases higher; and in most places the hours of machine operators are shorter.

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[1] From the *Report of the Industrial Commission* (1901), XVII, lx–lxi.

[For another discussion of the effects of machinery in displacing skilled labor see Selection 39: "Immigration and the Use of Machinery."—EDITORS.]

200. THE DAYTON EMPLOYERS' ASSOCIATION[1]

The Dayton Employers' Association was organized in June, 1900, with thirty-eight charter members, and was probably the first association formed for the definite purposes set forth in its constitution, as follows:

First—To protect its members in their right to manage their respective businesses, in such lawful manner as they may deem proper.

Second—The adoption of a uniform legitimate system whereby members may ascertain who is, or who is not, worthy of their employment.

Third—The investigation and adjustment, by proper officer or committees of the association, of any question arising between members and the employees, when such question shall be submitted to the association for adjustment.

Fourth—To endeavor to make it possible for any persons to obtain employment without being obliged to join a labor organization, and to encourage all such persons in their efforts to resist the compulsory methods of organized labor.

Fifth—To protect its members in such manner as may be deemed expedient and proper, against legislative, municipal, and other political encroachments.

Certainly it was the first association organized on the basis of including in its membership manufacturers, building contractors, merchants, and employers engaged in every character and class of business or trades.

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[1] Adapted from a pamphlet, *Benefits of Employers' Associations*, by A. C. Marshall, formerly secretary of The Dayton Employers' Association.

201. THE NATIONAL FOUNDERS' ASSOCIATION[1]

Organized.—In 1898, by a limited number of foundry proprietors.

Why organized.—Because the foundrymen who became its charter members found themselves at the mercy of foundry labor unions—chiefly among iron molders—and with broadminded foresight concluded that the effect of organizations of labor must be held in check by organizations of employers if the foundry industry were to remain upon a sound financial basis.

Its aims and purposes.—The adoption of a uniform basis for just and equitable dealings between members and their employees, whereby the interests of both will be properly protected.

Character of membership.—Persons, firms, or corporations engaged as principals in and operators of foundries where castings in iron, steel, brass, or other metals are made.

The Association has now been in existence 12 years, during which it has retained upon its rolls continually a representative class of foundry proprietors, who have been influenced in the continuation of their membership year after year, by the broadminded desire to accomplish as much as possible for the general good of the entire industry as a result of concerted action. Motives of selfish gain have not been influential in the maintenance of the Association.

Its early policy.—The foundrymen first comprising the membership of the N.F.A. made a decided attempt to meet the union of iron molders and arrange a system of agreements based upon the theory of "collective bargaining."

Seven years, during which approximately 2,500 conferences with iron molders' union officials were held, were devoted to an attempt to work out this policy. Ultimately this was found impossible because of the adherence of the union to rules and regulations which it had adopted for its own guidance as far back as 1859.

The failure of the union to appreciate the progressiveness of the age necessitated the adoption by the N.F.A. of an entirely independent policy.

Its present policy.—Was adopted November, 1904, and has been maintained successfully ever since.

This policy declares against union limitations of the foundry output or the earning capacity of the employee; against the imposition by labor unions of fines and restrictions upon the workmen; in favor of a fair day's pay for a fair day's work and the right of the employer to employ whomsoever he may wish without regard to union affiliation; that all workmen shall be required to work peacefully and harmoniously with fellow workmen; against the limitation of the employment of apprentices or unskilled help and in favor of the right of the foundryman to introduce molding machines and improved appliances and operate them with whatever class of labor he may select.

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[1] Adapted from a pamphlet, *Concise Information Regarding the National Founders' Association*, issued by the Association, May, 1911.

Character of support accorded members during strikes.—By procuring workmen to take the places of strikers; by having the members' castings made elsewhere; by granting compensation to the member on the basis of idle floors during the strike.

Dissemination of literature among workmen.—Every American labor union today possesses its weekly or monthly publication sent to the homes of workmen, preaching the doctrines of trade unionism. There are nearly 400 of these publications.

Realizing the demoralizing effects of the dissemination of this literature, the N.F.A. began five years ago to send its own publication into the homes of iron molders in order that they might learn the employers' side of the case.

The *Review* is now sought by the best element among the molders and is valued far in excess of any of the union journals. The results of this educational work have already proved it of inestimable value, and it should be extended to all branches of the trade.

In this work the N.F.A. is the pioneer of all employers' associations.

National legislation at Washington.—The efforts of union labor to secure pernicious class legislation at Washington are fraught with danger to the manufacturer. The National Founders' Association has been most active in working for the protection of the interests of the foundry industry in preventing the passage of legislation of this character.

Results.—The iron molders' union has been compelled to alter its ratio of apprentices in union shops.

It has been compelled to surrender control of the molding machine in the jobbing and machinery foundry.

It has been compelled to refrain from its slugging and murderous tactics in fighting strikes.

It has been compelled to abandon its policy of attempting to prevent a union foundry from making castings from a struck shop.

It has been compelled to recognize the growing practice of employing unskilled workmen in the production of lower grades of castings by making provision to admit these workmen into the union under a special charter.

It has been compelled to admit that there is little or nothing to be gained by agreements between foundrymen and this union.

It has surrendered its demands for closed shop written agreements where there is the slightest opposition.

It has surrendered its position of independence toward kindred organizations and applied to them for assistance.

It has surrendered its claim of lack of demands upon its members for excessive assessments by increasing its dues 60 per cent.

It has surrendered its boastful independence and claims of hundreds of thousands of dollars on deposit.

Its individual members, in certain localities, have been compelled to pay their local and national unions over $130.00 each per year for assessments.

Its membership has been depleted to such an extent as seriously to reduce its revenue and exhaust its reserve resources. The defeat of this union in its 1906 strike reduced its membership over 50 per cent.

Instead of being compelled to devote their entire time to receiving and dealing with demands from the molders' union as heretofore, foundrymen are now giving their attention to the introduction of improvements. Shops without number are today immune from these difficulties which three years ago were confronting them daily.

Wholesale defeat of the molders' union, through the N.F.A., in strikes during the past 6 years has so diminished the union influence in the one item of "restriction of output" as to be worth millions of dollars to the foundry industry.

Some foundry proprietors estimate their increased output, as a result of the removal of union influence, at 10 per cent; others at 25 per cent and still others estimate as high as 100 per cent; this latter figure is known to be correct in many instances where molding machines were introduced.

Cost of initiation for new members.—Based entirely upon the number of employees engaged in the foundry as follows:

For each floor molder, $2.50; for each bench molder and coremaker, $1.87½; for each apprentice, molding machine operator or specialty molder not skilled in the general trade, $1.25.

This is payable but once and then not until the new member is notified of his election.

Amount of regular dues.—These are payable quarterly, based upon reports made by the member. The rates (based on the average number employed) are as follows:

For each floor molder, 40 cents per month; for each bench molder and coremaker, 30 cents per month; for each apprentice, molding machine operator or specialty molder not skilled in the general trade, 20 cents per month.

Foundry laborers, helpers, cupola tenders, chippers, etc., are not subject to assessment under this schedule of employees.

202. THE UNITED TYPOTHETAE OF AMERICA[1]

The United Typothetae of America is a voluntary association of master printers organized to advance the interests of its membership in particular and incidentally to bring about better conditions in the entire printing industry—an industry, by the way, which ranks seventh in importance in the United States. When the Typothetae was organized, twenty-four years ago, it was brought into being because of the crystallization of the belief that an organization of master printers was a necessity. Theretofore the employers were unorganized, though their employees were acting as a unit in practically all branches of the business.

While more or less attention has always been paid to questions of costs and other matters relating to efficiency and management, it was not until about three years ago, that the organization as a whole saw the necessity of broadening the scope of its work to an extent that would permit it to include everything which in any way has a bearing on the interests and welfare of its membership. With the adoption of this broader policy it was decided to drop from consideration, so far as the national body was concerned, the question of whether shops were to be "open" or "closed," as it was seen that this was a matter which could best be handled by the local branches or by the individual plant.

That the new policy was a move in the right direction is proven by the astonishing increase in the membership of the United Typothetae of America since its adoption. Membership in the Typothetae is now seen to be, indirectly, a source of actual profit, for the expense is merely nominal and the benefits great. The following statement of its aims and objects shows its broad field of endeavor:

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[1] Adapted from a pamphlet, *United Typothetae of America, What It Is and What It Stands For*, issued by the Association, June, 1911.

Education of printers in matters of cost of production.

Education of printers in the benefits of organization, keeping especially in mind the greater power of one than of several associations.

The encouragement of more friendly relations and of greater confidence between printers, regardless of whether they are located in the same city or in widely scattered sections.

The promotion of trade schools for the education of printers.

The installation, under the supervision of experts, of scientific cost-finding systems.

The maintenance of credit bureaus.

The standardization of printing plants.

Suggesting plans for the rearrangement of workrooms, to the end that there may be greater economy in the expenditure of time.

The establishment of satisfactory trade relations with paper-dealers, supply houses, machinery-builders, and all those from whom equipment or supplies are purchased.

The standardization of shop practices.

The promotion of mutual fire insurance companies.

The education of printers in the principles of scientific management.

The maintenance of a free employment bureau.

The education of managers and men in matters of efficiency.

Education in the essentials of time requirements as they relate to all the processes entering into the production of printing.

Advising the membership concerning the purchase of new machinery or other equipment.

All other matters coming up from time to time which in any way affect the interests of the master printer.

The above is the platform of the United Typothetae of America. It will be seen that almost every item must be taken up nationally if anything worth while is to be accomplished. So far as insurance is concerned, two mutual companies have already been formed through the influence of the Typothetae, and the organization is supporting the School of Printing at Indianapolis both morally and financially.

203. INDUSTRIAL UNIONISM AND THE INDUSTRIAL WORKERS OF THE WORLD[1]

The principle upon which industrial unionism takes its stand is the recognition of the never-ending struggle between the employers of labor and the wage-working class. The members of the wage-working class, as a rule, have but one means of existing in the present capitalist state, viz., the sale of their labor power to the employing class. The employer uses the labor power of the worker for one purpose, to operate the machinery, or develop the resources, to which he has the title of ownership, and over which he has control.

In employing labor he is guided by exactly the same principle that directs him in the purchase of raw materials, or undeveloped resources, namely, to purchase the labor power necessary to his purpose, and pay as little for it as possible.

The workers, on the other hand, are driven by every circumstance to strive for as much as they can obtain of the values they create. For upon the amount which they as workers so obtain depends the very existence of themselves and those dependent upon them. The necessities of life, the degrees of comfort, of pleasure, of intellectual advancement, and of physical well-being; in short, their standard of living must inevitably depend upon the amount of the working wage.

The employer, the buyer of labor power in the labor market, desires large returns in the shape of profits upon his investment. Large profits in capitalist production in the last analysis mean but one thing, low wages, and generally inferior working conditions, for the class that exists through the sale of its labor power. Higher wages and improved working conditions, as a rule, mean smaller profits. These opposing economic forces, each striving to advance its own interests, are engaged in a never-ending struggle for supremacy in the field of production. A large majority of the working class today do not understand the struggle in which they are engaged, nor the cause from which it springs—the opposed economic interests of themselves and the capitalist class. As a result, in struggling for what they think are their interests, they fight in the dark, and thus have contributed and still contribute to their own defeat and continued subjection, directly and indirectly.

This, then, makes it imperative that the Industrial Union, to fulfil its mission as an organization of the working class, must take its stand upon a recognition of this struggle. It must educate its membership to a complete understanding of the principles and causes underlying every struggle between the two opposing classes.

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[1] Adapted from the pamphlet, *Industrial Unionism and the I.W.W.*, by Vincent St. John. Press of the I.W.W. Publishing Bureau.

The craft plan of organization is a relic of an obsolete stage in the evolution of capitalist production. At the time of its inception it corresponded to the development of the period: the productive worker in a given industry took the new raw material, and with the tools of the trade, or craft, completed the product of that industry, performing every necessary operation himself. As a result, the workers combined in organizations, the lines of which were governed by the tools that they used. At that period this was organization. Today, in view of the specialization of the process of production, the invention of machinery, and the concentration of ownership, it is no longer organization, but division. And division on the economic field for the worker spells defeat and degradation.

Take a leading industry of this country today, as a concrete example, and see what craft division means to the workers in that industry; the railroad industry for instance. In order to operate a railroad the labor of many workers is required. They are divided into the following organizations operating upon the theory that the interests of the railroad corporation and of their particular organization are identical: the engineers in the Brotherhood of Locomotive Engineers; the firemen in the Brotherhood of Locomotive Firemen and Engineers; the conductors in the Order Railway Conductors; the brakemen in the Brotherhood Railway Trainmen; the switchmen in the Switchmen's Union; the freight handlers in another organization; the telegraphers in another; the section men in another; the machinists, boiler-makers, car-repairers in separate organizations. The rest of the workers are, for the most part, without organization at all. The reason for this is that the organizations above-named make no attempt to fortify their own position by organizing the unorganized workers in the industry. They are under the false belief that their own organization is sufficient in and by itself.

Each of the above-named organizations is working under a contract for a certain length of time. Their membership is bound by the organizations to remain at work so long as the railroad company lives up to the terms of the contract, and, for the most part, the contracts of the different periods. The railroad management is thus insured against having to subjugate more than a part of its employees at any given time. The result of this condition of affairs is that whenever any branch of the workers in this industry enters into a conflict with the employer, they have not only to combat the resources of that employer, but also their fellow-workers in the same industry who remain at work, and assist the employer in the operation of the railroad. In every instance, the defeat is due to the lack of united action by the workers, part of them being compelled to remain at work in observance of their sacred agreement with the employer. They are simply blinded by the wrong principles and methods of their organizations.

Contrast this state of affairs with what would be the case, were these workers organized on the plan of the I.W.W., and educated in the principles on which it is based. The railway workers operating from any given division point would be organized under one charter, covering that industry for that division, a local Industrial Union of Transportation Workers. The workers composing that local industrial union would be branched, so as to permit the workers of each department to meet, discuss and decide all questions. For instance, the engineers and firemen, would meet as such to discuss and decide upon the conditions concerning the working conditions of their respective departments. The train crew would do likewise. Cooks, waiters, and porters would form another branch for the purpose of legislation as to their working conditions, and so on, with depot employees, telegraphers, dispatchers and towermen, machinists, boilermakers and repairmen, trackwalkers and sectionmen, yardmen, switchmen, flagmen, and crossing-tenders—until all the employees in that industry were organized in the branches to which they belonged by reason of the particular department in which they worked. Each branch would be represented in the Industrial Union by a delegate or delegates. These branches would be integral parts of the local Industrial Union. These delegates, upon meeting, would discuss the instructions received from the branches, confer together as representatives of the industry, and formulate the working conditions for the industry as a whole into demands. A representative of each branch would constitute the committee that would appear before the railroad managers, receive their reply and report back to the membership they represented. The membership would then decide upon their course of action, and instruct their local industrial union through its committee to proceed to carry such decision into effect. Wherever necessary, the question would be taken up to the National Industrial Union, composed of all local transportation industrial unions. Thus, when necessary, united action of the workers would result in the entire industry. If, in order to enforce their demands, it became necessary to cease work, a vastly different state of things from that first mentioned would confront the railway management. No part of the workers would be found as union men assisting in the operation of a scab railroad, for the simple reason that correct principles, backed up by correct and up-to-date organization, would have prepared the way for united action on the part of the workers in that industry.

The Industrial Workers of the World is in existence to gain control of the machinery of production, and then to operate it, distributing the wealth so produced to all who by brain or muscle have contributed in producing the joint product. To make possible the achievement of this result it offers the following Preamble as a statement of its principles:

> The working class and the employing class have nothing in common. There can be no peace so long as hunger and want are found among millions of the working people and the few, who make up the employing class, have all the good things of life.
>
> Between these two classes a struggle must go on until the workers of the world organize as a class, take possession of the earth and the machinery of production, and abolish the wage system.
>
> We find that the centering of the management of industries into fewer and fewer hands makes the trade unions unable to cope with the ever-growing power of the employing class. The trade unions foster a state of affairs which allows one set of workers to be pitted against another set of workers in the same industry, thereby helping defeat one another in wage wars. Moreover, the trade unions aid the employing class to mislead the workers into the belief that the working class have interests in common with their employers.
>
> These conditions can be changed and the interest of the working class upheld only by an organization formed in such a way that all its members in any one industry, or in all industries if necessary, cease work whenever a strike or lockout is on in any department thereof, thus making an injury to one an injury to all.
>
> Instead of the conservative motto, "A fair day's wages for a fair day's work," we must inscribe on our banner the revolutionary watchword, "Abolition of the wage system."
>
> It is the historic mission of the working class to do away with capitalism. The army of production must be organized, not only for the everyday struggle with capitalists, but also to carry on production when capitalism shall have been overthrown. By organizing industrially we are forming the structure of the new society within the shell of the old.

And as a working program by which to build, it proposes the following rules:

All power vests in the general membership through the initiative and referendum and the right of repeal and recall.

Universal transfer system and recognition of cards of union workers of all countries; one initiation fee to be all that is required, and this is to be placed at such a figure that no worker will be prevented from becoming a union man or woman because of its amount.

A universal label, badge, button, and membership card, thus promoting the idea of solidarity and unity amongst the workers.

A defense fund to which all members shall contribute.

The final aim of the industrial union will be to place the working class in possession of the wealth-producing machinery, mills, workshops, factories, railroads, etc., that the labor of the working class has created.

This aim cannot be accomplished while the workers are divided upon the field of production, as they have been in the past and are today. It cannot be accomplished until the workers, in an organization of and by the working class alone, educate themselves to carry on production in their own behalf.

Until sufficient numbers of the workers are educated to accomplish this task, the battle of the worker in capitalist society must be fought, and industrial unionism offers the only weapon with which the worker can hope to successfully combat the power of the employing class on the economic field.

204. STATISTICS OF THE EXTENT OF STRIKES[1]

STRIKES, ESTABLISHMENTS INVOLVED, STRIKERS, AND EMPLOYEES THROWN OUT OF WORK, BY YEARS, 1881 TO 1905

YEAR	STRIKES	ESTABLISHMENTS		STRIKERS		EMPLOYEES THROWN OUT OF WORK	
		Number	Average per strike	Number	Average per strike	Number	Average per strike
1881.....	471	2,928	6.2	101,070	215	129,521	275
1882.....	454	2,105	4.6	120,860	266	154,671	341
1883.....	478	2,759	5.8	122,198	256	149,763	313
1884.....	443	2,367	5.3	117,313	265	147,054	332
1885.....	645	2,284	3.5	158,584	246	242,705	376
1886.....	1,432	10,053	7.0	407,152	284	508,044	355
1887.....	1,436	6,589	4.6	272,776	190	379,676	264
1888.....	906	3,506	3.9	103,218	114	147,704	163
1889.....	1,075	3,786	3.5	205,068	191	249,559	232
1890.....	1,833	9,424	5.1	285,900	156	351,944	192
1891.....	1,717	8,116	4.7	245,042	143	298,939	174
1892.....	1,298	5,540	4.3	163,499	126	206,671	159
1893.....	1,305	4,555	3.5	195,008	149	265,914	204
1894.....	1,349	8,196	6.1	505,049	374	660,425	490
1895.....	1,215	6,973	5.7	285,742	235	392,403	323
1896.....	1,026	5,462	5.3	183,813	179	241,170	235
1897.....	1,078	8,492	7.9	332,570	309	408,391	379
1898.....	1,056	3,809	3.6	182,067	172	*a*) 249,002	*a*) 236
1899.....	1,797	11,317	6.3	308,267	172	417,072	232
1900.....	1,779	9,248	5.2	399,656	225	505,066	284
1901.....	2,924	10,908	3.7	396,280	136	543,386	186
1902.....	3,162	14,248	4.5	553,143	175	659,792	209
1903.....	3,494	20,248	5.8	531,682	152	656,055	188
1904.....	2,307	10,202	4.4	375,754	163	517,211	224
1905.....	2,077	8,292	4.0	176,337	85	221,686	107
Total...	36,757	181,407	4.9	6,728,048	183	*a*) 8,703,824	*a*) 237

a) Not including two strikes involving 33 establishments not reported.

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[1] From the *Twenty-first Annual Report* [1906] *of the U.S. Commissioner of Labor*, p. 15.

205. CAUSES OF STRIKES

Summary of Strikes for the United States Due Wholly or Partly to Each of Certain Causes, 1881 to 1905

Cause or Object	Per Cent of Establishments in Which Strike			Strikers		Employees Thrown Out of Work	
	Succeeded	Succeeded Partly	Failed	Number	Per Cent of Total (6,728,048)	Number	Per Cent of Total (a8,703,824)
For increase of wages	b)49.95	b)18.69	b)31.36	2,212,195	32.88	2,940,804	33.79
For increase of wages combined with various causes	c)46.87	c)25.18	b)27.95	1,331,158	19.79	1,598,199	18.36
Against reduction of wages	d)34.95	d)12.74	d)52.31	856,947	12.74	1,158,485	13.31
Against reduction of wages combined with various causes	67.40	6.21	26.39	99,698	1.48	134,744	1.55
For reduction of hours	e)50.69	e)10.08	e)39.23	389,876	5.79	514,496	5.91
For reduction of hours combined with various causes	f)52.35	f)21.93	f)25.72	850,694	12.64	1,004,135	11.54
Against increase of hours	50.06	12.85	37.09	65,883	.98	82,808	.95
Against increase of hours combined with various causes	61.53	6.15	32.32	22,164	.33	28,686	.33
Concerning recognition of union and union rules	g)55.48	g) 1.64	g)42.88	610,088	9.07	h)743,523	8.54
Concerning recognition of union and union rules combined with various causes	i)38.66	i)24.58	i)36.76	795,727	11.83	896,814	10.30
Concerning employment of certain persons (j)	24.81	1.64	73.55	287,883	4.28	k)402,339	4.62
Concerning employment of certain persons (j) combined with various causes	29.03	18.42	52.55	139,767	2.08	163,268	1.88
Concerning employees working out of regular occupation	50.09	2.15	47.76	29,112	.43	36,555	.42
Concerning employees working out of regular occupation combined with various causes	32.98	59.69	7.33	4,220	.06	6,079	.07
Concerning overtime work and pay	50.70	7.49	41.81	22,857	.34	30,639	.35
Concerning overtime work and pay combined with various causes	60.31	21.83	17.86	74,957	1.11	101,918	1.17
Concerning method and time of payment	39.56	3.25	57.19	69,025	1.03	80,918	.93
Concerning method and time of payment combined with various causes	55.39	27.60	17.01	235,668	3.50	251,995	2.90
Concerning Saturday part holiday	43.61	1.50	54.89	6,154	.09	7,622	.09
Concerning Saturday part holiday combined with various causes	l)52.16	l)23.45	l)24.39	62,916	.94	69,244	.80
Concerning docking, fines, and charges	48.55	8.46	42.99	42,228	.63	61,952	.71
Concerning docking, fines, and charges combined with various causes	22.07	59.45	18.48	171,404	2.55	177,740	2.04
Concerning working conditions and rules (j)	41.63	3.98	54.39	112,705	1.68	150,769	1.73

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[1] From the *Twenty-first Annual Report* [1906] *of the U.S. Commissioner of Labor*, p. 64.

Concerning working conditions and rules (*j*) combined with various causes	51.05	21.00	27.95	101,664	1.51	131,990	1.52
In sympathy with strikers and employees locked out elsewhere	*m*)20.68	*m*) 2.79	*m*)76.53	259,316	3.85	373,968	4.30
In sympathy with strikers and employees locked out elsewhere combined with various causes	11.13	5.57	83.30	18,420	.27	21,079	.24
Other causes (not specified above)	*i*)60.76	*i*) 6.50	*i*)32.74	194,057	2.88	233,584	2.68
Other causes combined with various above-specified causes	43.91	26.17	29.92	106,161	1.58	144,844	1.66

a) Not including 33 establishments not reported.

b) Not including 11 establishments in which strike was pending at the close of some one of the our investigations included in this report and 7 establishments not reported.

c) Not including 11 establishments in which strike was pending at the close of some one of the four investigations included in this report.

d) Not including 38 establishments in which strike was pending at the close of some one of the four investigations included in this report.

e) Not including 437 establishments in which strike was pending at the close of some one of the four investigations included in this report.

f) Not including 1 establishment in which strike was pending at the close of some one of the four investigations included in this report.

g) Not including 36 establishments in which strike was pending at the close of some one of the four investigations included in this report.

h) Not including 21 establishments not reported.

i) Not including 4 establishments in which strike was pending at the close of some one of the four investigations included in this report.

j) Not involving union rules.

k) Not including 12 establishments not reported.

l) Not including 6 establishments in which strike was pending at the close of some one of the four investigations included in this report.

m) Not including 3 establishments not reported.

206. ESTIMATES OF LOSSES DUE TO STRIKES AND LOCKOUTS

a) TWENTY YEARS OF LOSSES FROM STRIKES AND LOCKOUTS[1]

Year	Strikes			Lockouts		
	To Date when Strikers Were Re-employed or Employed Elsewhere		Loss of Employers	To Date When Employees Locked Out Were Re-employed or Employed Elsewhere		Loss of Employers
	Wage Loss of Employees	Assistance to Employees by Labor Organizations		Wage Loss of Employees	Assistance to Employees by Labor Organizations	
1881...	$ 3,372,578	$ 287,999	$1,919,483	$ 18,519	$ 3,150	$ 6,960
1882...	9,864,228	734,339	4,269,094	466,345	47,668	112,381
1883...	6,274,480	461,233	4,696,027	1,069,212	102,253	297,097
1884...	7,666,717	407,871	3,393,073	1,421,410	314,027	640,847
1885...	10,663,248	465,827	4,388,893	901,173	89,488	455,477
1886...	14,992,453	1,122,130	12,357,808	4,281,058	549,452	1,949,498
1887...	16,560,534	1,121,554	6,698,495	4,233,700	155,846	2,819,736
1888...	6,377,749	1,752,668	6,509,017	1,100,057	85,931	1,217,199
1889...	10,409,686	592,017	2,936,752	1,379,722	115,389	307,125
1890...	13,875,338	910,285	5,135,404	957,966	77,210	486,258
1891...	14,801,505	1,132,557	6,176,688	883,709	50,195	616,888
1892...	10,772,622	833,874	5,145,691	2,856,013	537,684	1,695,080
1893...	9,938,048	563,183	3,406,195	6,659,401	364,268	1,034,420
1894...	37,145,532	931,052	18,982,129	2,022,769	160,244	982,584
1895...	13,044,830	559,165	5,072,282	791,703	67,701	584,155
1896...	11,098,207	462,165	5,304,235	690,945	61,355	357,535
1897...	17,468,904	721,164	4,868,687	583,606	47,326	298,044
1898...	10,037,284	585,228	4,596,462	880,461	47,098	239,403
1899...	15,157,965	1,096,030	7,443,407	1,485,174	126,957	379,365
1900...	18,341,570	1,434,452	9,431,299	16,136,802	448,219	5,447,930
Total	$257,863,478	$16,174,793	$122,731,121	$48,819,745	$3,451,461	$19,927,983

b) LOSSES FROM THE ANTHRACITE COAL STRIKE OF 1902[2]

It is impossible to state with accuracy the losses occasioned by the strike, but fair estimates may be given. The total shipments of anthracite coal in 1902, according to a statement by Mr. Wm. W. Ruley, Chief of the Bureau of Anthracite Coal Statistics, were 31,200,890 long tons. As compared with 1901, when the shipments amounted to 53,568,601 long tons, this indicates a decrease of 22, 367,711 long tons, or over 40 per cent. If the same decrease is assumed for the coal mined for local trade and consumption, the total decrease in production in 1902 amounted to 24,604,482 long tons, which at the price received in 1901 meant a decrease in the receipts of the coal-mining companies, for their product at the mines, of $46,100,000. Assuming the average wage cost to be about $1.25 per ton on marketable coal, and allowing for the wages paid to engineers, pumpmen, and others who remained at work during the strike, the mine employees lost in wages a total of about $25,000,000.

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[1] From the *Sixteenth Annual Report* [1901] *of the U.S. Commissioner of Labor*, p. 24.

[2] From the "Report of the Anthracite Coal Strike Commission," *Bulletin of the U.S. Bureau of Labor*, VIII, 463.

It may also be mentioned that, according to reports made at the recent convention of mine workers in Indianapolis, there were expended about $1,800,000 in relief funds.

Assuming that 60 per cent of the total shipment represents the sizes above pea coal, the decrease in the shipments of these larger sizes in 1902, as compared with 1901, was 13,420,627 long tons. With an average price at New York Harbor of $4.09 per ton, and with 35 per cent of the receipts charged to transportation expenses, the decrease in freights paid to the railroad companies on these larger sizes, if it had all been sent to New York Harbor, would have been about $19,000,000; and assuming the freight rate of $1 per ton on the smaller sizes, the total decrease in freight receipts of the transportation companies would have been about $28,000,000.

207. UNEMPLOYMENT AND A PROPOSED SOLUTION OF THE PROBLEM[1]

We have, therefore, to report:

1. That distress from want of employment, though periodically aggravated by depression of trade, is a constant feature of industry and commerce as at present administered; and that the mass of men, women, and children suffering from the privation due to this unemployment in the United Kingdom amounts, at the best of times, to hundreds of thousands, while in years of trade depression they must exceed a million in number.

2. That this misery has no redeeming feature. It does not, like the temporary hardships of work or adventure, produce in those capable of responding to the stimulus, greater strength, energy, endurance, fortitude, or initiative. On the contrary, the enforced idleness and prolonged privation characteristic of unemployment have, on both the strong man and the weak, on the man of character and conduct, and on the dissolute, a gravely deteriorating effect on body and mind, on muscle and will. The magnitude of the loss thus caused to the nation, first in the millions of days of enforced idleness of productive laborers, and secondly in the degradation and deteriora-

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[1] Adapted from the minority report of the Royal Commission on the Poor Laws (1909), pp. 1177–78 and 1215–17.

tion of character and physique—whether or not it is increasing—can scarcely be exaggerated.

3. That men in distress from want of employment approximate to one or other of four distinct types, requiring distinct treatment; namely, the men from permanent situations, the men from discontinuous employment, the underemployed, and the unemployable.

4. That what is needed for the men from permanent situations, is some prompt and gratuitous machinery for discovering what openings exist, anywhere in the United Kingdom, for their particular kind of service; or for ascertaining with certainty that no such openings exist; with suitable provision, where individual saving does not suffice, for the maintenance of themselves and their households whilst awaiting re-employment. Both the machinery and the provision are at present afforded, in some industries, by trade-union "Vacant Books" and trade-union insurance. This, however, does not meet the need of the large numbers of men in occupations for which no trade-union exists, or in which no machinery for reporting vacancies and no insurance against unemployment have been organized. Nor does it meet the cases, unhappily always occurring in one industry or another, of men whose occupation is being taken from them by the adoption of new processes or new machinery, without any effective opportunity being afforded to them of training themselves to new means of livelihood.

5. That for the men of discontinuous employment the same prompt and gratuitous machinery for discovering what openings exist, anywhere in the United Kingdom, is required, not only for individuals exceptionally unemployed, but for the entire class, at all times; in order to prevent the constant "leakage" of time between job and job, and to obviate the demoralizing aimless search for work, whether over any one great urban aggregation, or by means of wandering from town to town. The same machinery becomes imperative, in times of bad trade, in order to ascertain with certainty that no opportunity of employment exists. Without some such machinery, experience shows that insurance against unemployment breaks down, owing to the excessive amount of "time lost" between jobs, and the impossibility of securing that every claimant has done his best to get work.

5.[1] That of all the forms of unemployment, that which we have termed under-employment, extending, as it does, to many hundreds of thousands of workers, and to their whole lives, is by far the worst in its evil effects; and that it is this system of chronic under-employment which is above all other causes responsible for the perpetual manufacture of paupers that is going on; and which makes the task of the Distress Committees in dealing with the unemployed of other types—such as the men from permanent situations, or the men of discontinuous employment—hopelessly impracticable.

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[1] [This duplication of the paragraph number appears in the original.—Editors.]

6. That we have been unable to escape from the conclusion that, owing to various causes, there has accumulated, in all the ports, and indeed in all the large towns of the United Kingdom, an actual surplus of workmen, there being more than are required to do the work in these towns even in times of brisk trade; this surplus showing itself in the existence of the stagnant pools of labor that we have described, and in the chronic under-employment of tens of thousands of men at all seasons and in all years.

7. That we have been struck by the fact that this chronic under-employment of men is coincident with the employment in factories and workshops, or on work taken out to be done at home, of a large number of mothers of young children who are thereby deprived of maternal care; with an ever-growing demand for boy-labor of an uneducational kind; and actually with a positive increase in the number of "half-timers" (children in factories below the age exempting them from attendance at school). Thus we have, in increasing numbers (though whether or not in increasing proportion is not clear), men degenerating through enforced unemployment or chronic under-employment into parasitic unemployables; and the burden of industrial work cast on pregnant women, nursing mothers, and immature youths.

8. That the task of dealing with unemployment is altogether beyond the capacity of authorities having jurisdiction over particular areas; and can be undertaken successfully only by a department of the national government.

9. That the experience of the Poor Law in dealing with destitute able-bodied men and their dependents; of the Distress Committees in providing for laborers out of employment; of the police in attempting to suppress vagrancy and "sleeping out"; of the Prison Commissioners in having to accommodate in gaol large numbers of men undergoing short sentences for offences of this nature; of the education and public health authorities in feeding and medically treating the necessitous dependents of able-bodied men; and of the voluntary

agencies dealing with the "houseless poor" of great cities, all alike prove that every attempt to deal only with this or that section of the able-bodied and unemployed class is liable to be rendered nugatory by the neglect to deal simultaneously with the other sections of men in distress, or claiming to be in distress, from want of employment. That accordingly, in our judgment, no successful dealing with the problem is possible unless provision is simultaneously made in ways suited to their several needs and deserts for all the various sections of the unemployed by one and the same authority.

SUMMARY OF PROPOSALS

We therefore recommend:

1. That the duty of so organizing the national labor market as to prevent or to minimize unemployment should be placed upon a minister responsible to Parliament, who might be designated the Minister for Labor.

. . . .

3. That the function of the National Labor Exchange should be, not only (*a*) to ascertain and report the surplus or shortage of labor of particular kinds, at particular places; and (*b*) to diminish the time and energy now spent in looking for work, and the consequent "leakage" between jobs; but also (*c*) so to "dovetail" casual and seasonal employments as to arrange for practical continuity of work for those now chronically under-employed. That while resort to the National Labor Exchange might be optional for employers filling situations of at least a month's duration, it should (following the precedent of the Labor Exchange for seamen already conducted by the Board of Trade in the mercantile marine offices) be made legally compulsory in certain scheduled trades in which excessive discontinuity of employment prevails; and especially for the engagement of casual labor.

. . . .

5. That, in order to secure proper industrial training for the youth of the nation, an amendment of the Factory Acts is urgently required to provide that no child should be employed at all below the age of fifteen; that no young person under eighteen should be employed for more than thirty hours per week; and that all young persons so employed should be required to attend for thirty hours per week at suitable trade schools to be maintained by the local education authorities.

. . . .

7. That all mothers having the charge of young children, and in receipt, by themselves or their husbands, of any form of public assistance, should receive enough for the full maintenance of the family; and that it should then be made a condition of such assistance that the mother should devote herself to the care of her children, without seeking industrial employment.

. . . .

9. That in order to meet the periodically recurrent general depressions of trade, the government should take advantage of there being at these periods as much unemployment of capital as there is unemployment of labor; that it should definitely undertake, as far as practicable, the regularization of the national demand for labor; and that it should, for this purpose, and to the extent of at least £4,000,000 a year, arrange a portion of the ordinary work required by each department on a ten years' program; such £40,000,000 worth of work for the decade being then put in hand, not by equal annual instalments, but exclusively in the lean years of the trade cycle; being paid for out of loans for short terms raised as they are required, and being executed with the best available labor, at standard rates, *engaged in the ordinary way.*

10. That in this ten years' program there should be included works of afforestation, coast protection, and land reclamation; to be carried out by the Board of Agriculture exclusively in the lean years of the trade cycle; *by the most suitable labor obtainable taken on in the ordinary way*, at the rates locally current for the work, and paid for out of loans raised as required.

11. That the statistical and other evidence indicates that, by such measures as the above, the greater part of the fluctuations in the aggregate volume of employment can be obviated; and the bulk of the surplus labor manifesting itself in chronic under-employment can be immediately absorbed, leaving, at all times, only a relatively small residuum of men who are, for various reasons, in distress from want of work.

12. That with a lessened discontinuity of employment, and the suppression of under-employment, the provision of out-of-work benefit by trade unions would become practicable over a much greater range of industry than at present; and its extension should, as the best form of insurance against unemployment, receive government encouragement and support. That in view of its probable adverse effect on trade-union membership and organization, we are unable

to recommend the establishment of any plan of government or compulsory insurance against unemployment. That we recommend, however, that, following the precedents set in several foreign countries, a government subvention not exceeding one-half of the sum actually paid in the last preceding year as out-of-work benefit should be offered to trade-unions or other societies providing such benefit, in order to enable the necessary weekly contributions to be brought within the means of a larger proportion of the wage-earners.

13. That for the ultimate residuum of men in distress from want of employment, who may be expected to remain, after the measures now recommended have been put in operation, we recommend that maintenance should be freely provided, without disfranchisement, on condition that they submit themselves to the physical and mental training that they may prove to require. That it should be the function of the Maintenance and Training Division of the Ministry of Labor to establish and maintain receiving offices in the various centers of population, at which able-bodied men in distress could apply for assistance, and at which they would be medically examined and have their faculties tested in order to discover in what way they could be improved by training. They would then be assigned either to suitable day-training depots or residential farm colonies, where their whole working time would be absorbed in such varied beneficial training of body and mind as they proved capable of; their wives and families being, meanwhile, provided with adequate home aliment.

. . . .

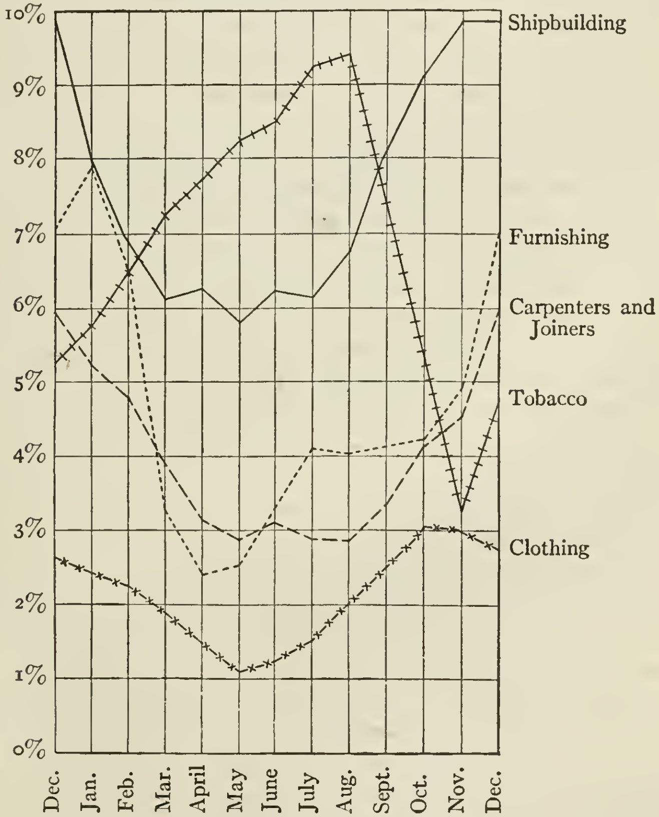
15. That the Maintenance and Training Division should also establish one or more Detention Colonies, of a reformatory type, to which men would be committed by the magistrates, and compulsorily detained and kept to work under discipline, upon conviction of any such offences as vagrancy, mendicity, neglect to maintain family or to apply for public assistance for their maintenance if destitute, repeated recalcitrancy or breach of discipline in a training establishment, etc.

16. That for able-bodied women, without husband or dependent children, who may be found in distress from want of employment, there should be exactly the same sort of provision as for men. That for widows or other mothers in distress, having the care of young children, residing in homes not below the national minimum of sanitation, and being themselves not adjudged unworthy to have children entrusted to them, there should be granted adequate home aliment

on condition of their devoting their whole time and energy to the care of the children. That for the childless wives of able-bodied men in attendance at a training establishment, adequate home aliment be granted, conditional on their devoting their time to such further training in domestic economy as may be prescribed for them.

208. SEASONAL UNEMPLOYMENT

Average Percentages of Unemployment at the End of Each Month, According to English Trade Union Figures, 1897–1906[1]



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[1] The data as given in Sidney Webb's Introduction to *Seasonal Trades*, p. 39. Constable & Co., 1912.

209. LONG HOURS VERSUS EFFICIENCY[1]

Perhaps the most significant study ever published on the subject of the relation between fatigue and the output of working-men is that which was set forth in two lectures before the Jena Society for Political Economy, in 1901, by Ernst Abbé, physicist, university professor, inventor of the first rank, and owner of a world-famous manufacturing plant—the Carl Zeiss optical works at Jena.

When Abbé entered the Zeiss firm, in 1870, the workday had been twelve hours long. It was gradually reduced, reaching nine hours in 1891. Nine years later it was further shortened to eight hours, for the purpose of discovering, by a year's trial, the effect on output.

Abbé was familiar with the British experiments in reducing the length of the workday, and had been particularly impressed by the experience of the Woolwich Arsenal in changing from nine to eight hours without loss or decrease in output. The general similarity and consensus of English experience on the benefits of the short day to output, organization, and invention seemed to Abbé presumptive evidence of its truth. But he realized that specific statistical proofs of increased efficiency under the eight-hour régime were still needed, and he published the careful records and statistics of the Zeiss Works precisely to corroborate more exactly the general principles empirically learned in British mills and factories.

The effects of the change from nine to eight hours were measured by comparing the earnings of piece-workers during the year before and the year after the change. In order to make the comparison as accurate as possible and to eliminate chance variations, great care was taken to omit all workers whose output might have been affected by special individual causes. The comparison was limited to workers who had been in the firm's employ four years, and who were over twenty-two years old. All workers were ruled out who had lost more than 300 hours during the year on account of sickness or other reasons. About 20 others were not counted because their health seemed below par. This left 233 workmen whose work during the trial year could fairly be compared with the year before and could be expected to show the effect of the reduction of hours. Thanks to the careful system of accounting, showing for years back the daily individual earnings of men at piece- and time-work, the following figures were available.

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[1] From Josephine Goldmark, *Fatigue and Efficiency*, pp. 155–65. Survey Associates (publishers for the Russell Sage Foundation), 1912.

COMPARISON OF HOURLY EARNINGS OF 233 PIECE-WORKERS IN THE ZEISS OPTICAL WORKS

IN THE LAST YEAR OF THE NINE-HOUR SYSTEM (APRIL 1, 1899—APRIL 1, 1900) AND IN THE FIRST YEAR OF THE EIGHT-HOUR SYSTEM (APRIL 1, 1900—APRIL 1, 1901)

Year	Total Number Piece-Work Hours	Earnings, in Marks	Earnings per Hour, in Pfennigs	Ratio of Increase
1899–1900...	559,169 Average per man 2400	345,899	61.9	100:116.2
1900–1901...	509,599 Average per man 2187	366,484	71.9	

Now if the men, in eight hours, had earned exactly the same as in nine hours, piece prices remaining the same, then hourly earnings would have had to increase in the ratio of 8:9 or 100:112.5. But as a matter of fact, the hourly earnings increased in the ratio of 100:116.2. During the trial year, therefore, wages were *more* than equal to those of the previous year. There was an increase, as shown above, of 3 per cent. This means that in eight hours the daily output was one-thirtieth more than in nine hours. In other words, during the trial year 30 men did the work that 31 men had done previously. Each man did ten days' more work during the year of shorter hours.

This increase in efficiency was not confined to any one class of workers, nor was it particularly influenced by the ages of the workers. The following table shows the ages of the 233 workers under discussion, and how nearly uniform was their increase in efficiency in the shorter day.

INCREASE IN EFFICIENCY UNDER THE EIGHT-HOUR DAY OF 233 PIECE-WORKERS AT THE ZEISS OPTICAL WORKS—CLASSIFIED BY AGES

(Ages Were Reckoned from April 1, 1900. Length of Service Reckoned according to Years Spent in the Firm's Employ after the Eighteenth Birthday)

AGES	No. of Workmen	Average Ages	Average Length Service	AVERAGE PIECE-RATE EARNINGS PER HOUR IN PFENNIGS		RATIO OF INCREASE
				9-Hour Day	8-Hour Day	
22–25..............	34	23.5	5.5	55.3	65.2	100:117.9
25–30..............	69	27.3	7.9	62.2	72.6	100:116.7
30–35..............	69	32.2	10.1	65.1	74.8	100:114.9
35–40..............	40	37.7	12.7	60.6	70.2	100:115.8
Over 40............	21	45.3	15.3	63.3	74.3	100:117.4
Total..........	233	31.6*	9.6†	61.9	71.9	100:116.2

*Maximum 53, minimum 22 years. †Maximum 33, minimum 4 years.

A second classification divides the 233 workers in question according to their special kinds of work. It shows that the efficiency of all increased in about the same proportion, though the work ranged from the most delicate and highly skilled technical processes to the ordinary operations of wood-turning, polishing, etc.

The most interesting fact that emerges from this table is that the largest increase in efficiency occurred in the coarser kinds of work. Groups 4, 7, and 11, which comprise almost entirely machine workers, showed the greatest improvement. Only one small group of 20 workers, highly skilled hand grinders, did not produce or earn as much in eight hours as in nine. They failed by 3 per cent.

INCREASE IN EFFICIENCY OF THE 233 WORKERS—CLASSIFIED BY OCCUPATION

OCCUPATION	No. of Persons	Average Age	Average Length Service: Years	EARNINGS PER HOUR IN PFENNIGS		RATIO OF INCREASE
				9-Hour Day	8-Hour Day	
Optical Operations:						
1. Lens-setters: Fine handwork	21	31.1	12.7	72.8	84.9	100:116.6
2. Microscope grinders, etc.	20	33.2	13.8	79.1	86.5	100:109.4
3. Other hand grinders and centerers, entirely handwork	59	26.1	7.5	60.4	70.5	100:116.7
4. Machine grinders, entirely machine work	19	32.1	5.8	52.2	62.0	100:118.8
Mechanical and Auxiliary Work:						
5. Adjusting rooms, entirely handwork	22	31.7	8.2	65.5	76.7	100:117.1
6. Mounting rooms, chiefly handwork	20	36.9	11.6	66.6	78.5	100:117.9
7. Turning and milling, entirely machine work	23	35.2	11.1	57.6	68.0	100:118.1
8. Polishers and lacquerers, entirely handwork	17	34.7	11.2	53.8	63.3	100:117.7
9. Engraving, entirely handwork	5	27.2	6.8	56.1	66.9	100:119.3
10. Molders, entirely handwork	6	36.2	9.7	56.4	64.8	100:114.9
11. Carpenters, part hand, part machine	15	35.2	10.5	52.3	62.9	100:120.3
12. Case makers, chiefly handwork	6	30.4	6.4	55.7	62.8	100:112.7
	233	31.6	9.6	61.9	71.9	100:116.2

One more table of figures, and we can turn to the argument which Abbé based upon his statistics. He sought for corroboration of the astonishing fact that eight hours' work not only equalled but exceeded nine hours' work, and he found it in a perfectly objective standard of measurement; that is, the amount of power used during the four weeks before and four weeks after the introduction of the eight-hour day.

The 650 different machines in the Zeiss Works were driven by one central dynamo (not connected with the lighting). The amount of power used was determined by hourly readings of a wattmeter. In regard to the expenditure of power, Abbé makes a distinction between the actual amount *used*, when it is transmitted and the machines are in operation, and the so-called "waste" of power, when the plant is "running dead," as it is called; that is, when power is turned on and available but the machines are not in use—as just before work begins, etc.

The wattmeter readings showed that during the last four weeks of the nine-hour system, the average amount of power transmitted per hour was 49.2 kilowatts. By a special contrivance it was shown that during this time, the hourly "waste of power" (the plant "running dead") was about half the total use, that is, 26 k. w. Thus the actual amount of power used averaged 23.2 k. w. per hour. After the eight-hour day was introduced the amount of power transmitted rose from 49.2 k. w. to 52 k. w. per hour. The actual amount used rose from 23.2 k. w. to 26.0 k. w. per hour; that is, in the ratio of 100:112. This shows that eight hours' work just equalled the previous nine hours' work, since, as we have seen before, for our mathematical basis, 8:9=110:112.5.

But in effect, in many of the operations, the output not only equalled but exceeded that of the previous nine-hour régime; and the wattmeter readings proved this also. For the majority of the machines in the works (three-fourths of them) were not wholly automatic. They were machines which the workers used like tools, using more or less power according to their intensity of application, by shortening pauses between operations, pressing more or less heavily in grinding and polishing, and in similar ways.

Hence the increased amount of power used in the eight-hour day, as shown by the hourly readings, was to be ascribed not to *all* the machines, but to three-quarters of the machines only. The ratio of increase for these, where the men regulated the amount of power used, was larger than the given figure of 100:112 which included *all* the machines. For three-quarters of the machines, the ratio of increase was higher; that is, as 100:116. In other words, they exceeded in eight hours by 3 per cent the output of the nine-hour day, confirming the conclusion previously proved by the earnings of the piece-workers.

Such being the evidence of cold statistics, the man of science in Abbé began to search for the causes. He examined the external conditions of work during the trial year and the year before. They had not markedly varied. The demand for Zeiss products and the consequent pressure at the works had been the same. There had been no extremes of heat or cold in the seasons, which, as he found, sometimes affect the output of highly skilled mechanics. In fact, the workers had for the most part been unconscious of their increased intensity of work. Many would not believe that they had produced more in eight hours than in nine until shown the proof. The figures showing the weekly amount of power used confirmed what Abbé learned direct from the men. Some had begun to work with feverish intensity when the new day was introduced, but had given it up in disgust after the first week, finding the effort exhausting. During the second week the output of these workers had consequently fallen below the nine-hour day; but by the third or fourth week they had recovered their normal pace, and, unknown to themselves, were equalling and surpassing the work of the longer day.

Abbé concluded that the adaptation of the worker to the shorter day, his intensity of application, was largely automatic, and did not depend primarily on his good or ill will. This was proved also by the firm's previous experience with overtime. Under the nine-hour régime, the men had been required to work one hour overtime at seasons of pressure. But it had been found that their efficiency did not keep up for any length of time. It fell off in about two weeks, in spite of the men's evident desire to earn the 25 per cent higher wages of overtime. One November Abbé himself had tried the experiment, when the men were eager to earn more just before Christmas. But the result was the same. The output of overtime deteriorated in one week, and by the third or fourth week it was practically nil.

Just where each man's maximum lies, when he can accomplish most in the shortest time without injury to himself, Abbé thought essentially a matter of special investigation. But he concluded, from his own extended observations and from the experience of others in Germany and England, that for about three-fourths of the industrial workers of Germany nine hours was too long a day in which to reach their maximum and eight hours not too short to reach it. He therefore recommended a program still commonly held radical—the gradual reduction of the workday not to nine but to eight hours for German industries, in the interests of economic development and of greater national efficiency.

210. THE SWEATING SYSTEM[1]

In contrast with the growth of large establishments, which is so conspicuous a feature of recent economic development, it must be observed that in certain industries the small shop retains its hold. One phase of this remarkable exception to the general trend of industrial organization is found in the so-called sweating system in the manufacture of clothing, where, in certain divisions of the trade, the larger establishments have been driven out of business by smaller establishments. This supremacy of the smaller establishments is closely connected with the fact that in them are found the worst conditions of labor—low wages, long hours, and oppressive methods of payment.

The sweating system in the clothing trade, from the standpoint of organization of industry, consists in the separation of the manufacturing from the marketing of the product. The wholesale clothing manufacturer is really a wholesale merchant, and the manufacturing proper is conducted by independent contractors in their own small establishments. While in certain lines of clothing there is a tendency toward the growth of large merchandising, owing to the greater economies in managing and sustaining a staff of salesmen and in the larger purchases of cloth, yet on the manufacturer's side there is an advantage in the small establishment. One reason why the small establishment survives is the wide variety of garments manufactured. Ready-made clothing is now produced in factories for men, women, and children, of all styles and grades. Hence there is an economy if each establishment specializes on certain lines; and it is usually the case that one contractor devotes his entire attention to a certain grade of coats, another to a certain grade of vests, and so on. The facts, too, that the business depends on the season, that the capital invested must lie idle during several months of the year, and that the factory must usually be located in a large city, where rents are very high, make it to the advantage of the merchant to throw the expenses of these items upon the contractor. Such articles as overalls, army clothing, and cheaper garments can be made on a large scale in successful competition with the smaller shops, but the smaller shops hold their own in the greater portion of clothing manufacture.

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[1] From the *Final Report* (Vol. XIX) *of the Industrial Commission* (1902), pp. 740–42.

The principal reason, however, for the existence of the small shop is the oversupply of cheap labor, brought about through immigration, and the pressure of this class of laborers to find employment under whatever conditions may be imposed. This class of labor can best be secured through the personal interest of a contractor rather than that of a foreman. The contractor lives in the neighborhood of the immigrants, is familiar with their languages, and is able to secure them in times of business activity. His solicitations are more personal than those of large employers.

On account of these conditions, the manufacturers, instead of employing foremen to supervise the manufacture of their garments, give their work out to contractors. The contractors, requiring but little capital, spring up in large numbers, and their competition with one another drives the contract price to the lowest possible limit. Being on intimate terms with their employees, and in many cases even less prosperous than the better grade of workmen, they act as go-betweens, and when the merchant's price for a garment is lowered, they can persuade their workmen to take a reduction in pay or to agree to work longer hours. In this way a continual higgling is conducted; and since in the absence of strong labor organization no established scale of wages and no regular hours of labor exist, there is no protection for the contractor or the sweat-shop worker.

Originally the sweating system was a system of working at home, whither the tailor with his family and a few helpers carried the goods which they were to prepare for the merchant. The homework or tenement-house work of former years has largely disappeared, especially for the manufacture of ready-made garments, owing particularly to legislation directed against it in the years following the influx of immigrants fifteen years and more ago. At the same time, also, the progress of the industry has demonstrated the greater economy of separate shops, where a larger number can be employed upon the same garment, with a more minute division of labor. These small shops have taken the place of the tenements in the manufacture of the bulk of ready-made clothing. Many of them are in the rear of tenements and sometimes in portions of tenements, though not in the living rooms. There is, however, one remnant of the original homework which still largely clings to the tenement, namely, the so-called "finishing" on coats and trousers, and also certain kinds of light work by which the women of the house earn "pin money." While the greater portion of the work on ready-made clothing has been taken out of the tenement house, yet, since the "finishing" of the garments is still largely done at home, it is evident that, as far as contagious and infectious diseases are concerned, tenement-house work is fully as dangerous to the public as it was in earlier days.

211. THE ECONOMIC THEORY OF A LEGAL MINIMUM WAGE[1]

We must first get clearly before us the distinction between the fixing and enforcing of a Minimum, and the fixing and enforcing of a wage. What is here in question (as in all factory legislation) is a Minimum, not a Maximum—still less any actual decision that the wage shall be such or such sum. There is no sort of resemblance or analogy between prescribing that the work-people shall under no circumstances get more than a specified rate, and merely enacting that they shall under no circumstances get less. The whole economic and social consequences and results of the two types of legislation, and their effects on employers and on industry, are as different as chalk is from cheese.

The principal question for the economist to consider is how the adoption and enforcement of a definite minimum of wages in particular trades is likely to affect, both immediately and in the long run, the productivity of those trades, and of the nation's industry as a whole.

Now upon this point the verdict of economic theory, whatever it may be worth, is, I submit, emphatic and clear. To the modern economist there seems nothing in the device of a legal minimum of wages, especially where (as would in the great majority of trades be the case) it takes the form of a Standard Piecework List, that is in any way calculated to diminish productivity. On the contrary, all experience, as well as all theory, seems to show that, as compared with no regulation of wages, or with leaving the employer free to deal individually with each operative, it must tend actually to increase the productivity of the industry. Every employer naturally prefers to be free to do whatever he chooses; to compete in any way he pleases, on the downward way as well as on the upward way. But the enforcement in any industry, whether by law or by public opinion, or by strong Trade Unionism, of a Standard Rate, a Normal Day and prescribed conditions of sanitation and safety, does not prevent the employer's choice of one man rather than another, or forbid him to pick, out of the crowd of applicants, the strongest, the most skilful, or the best conducted workman. The universal enforcement of a Legal Minimum Wage in no way abolishes competition for employment. It does not even limit the intensity of such competition, or the freedom of the employer to take advantage of it. All that it does is to transfer the pressure from one element in the bargain to the other—from the wage to the work, from price to quality. If the conditions of employment are unregulated, it will frequently "pay" an employer (though it does not pay the community for him to do so) *not to select the best workman*, but to give the preference to an incompetent or infirm man, a "boozer" or a person of bad character, provided that he can hire him at a sufficiently low wage, make him work excessive and irregular hours, or subject him to insanitary or dangerous conditions. In short, the employer may (in the absence of definitely fixed minimum conditions) make more profit, though less product, out of inefficient workmen than out of good workmen. With a Legal Minimum Wage, and with similarly fixed hours and sanitary conditions, this frequent lowering of productivity is prevented. If the employer cannot go below a common minimum rate, and is unable to grade the other conditions of employment down to the level of the lowest and most necessitous wage earner in his establishment, he is economically impelled to do his utmost to raise the level of efficiency of his workers, so as to get the best possible return for the fixed conditions. Thus, a Legal Minimum Wage positively increases the productivity of the nation's industry, by insuring that the surplus of unemployed workmen shall be exclusively the least efficient workmen; or to put it in another way, by insuring that all the situations shall be filled by the most efficient operatives who are available. This is plainly not the case under "free competition" where there is no fixed minimum.

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[1] Adapted from Sidney Webb, "The Economic Theory of a Legal Minimum Wage," in *The Journal of Political Economy*, XX, 976–96 (December, 1912).

[For estimates of the reasonable minimum of living expenses see Selection 9, on "A Normal Standard of Living."—EDITORS.]

But the enforcement of a Legal Minimum Wage does more than act as a perpetual stimulus to the selection of the fittest men for employment. The fact that the employer's mind—no longer able to seek profit by "nibbling" at wages—is constantly intent on getting the best possible workmen, silently and imperceptibly reacts on the wage earners. The young workman, knowing that he cannot secure a preference for employment by offering to put up with worse conditions than the standard, seeks to commend himself by a good character, technical skill, and general intelligence. Under a Legal Minimum Wage there is secured what under perfectly free competition is not secured, not only a constant selection of the most efficient but also a positive stimulus to the whole class to become more and more efficient. It is unnecessary here to dwell on the enormous moral advantage of such a permanently acting, all-pervasive influence on character. But this, too, has an economic value in increasing productivity.

So far we have considered merely the effect upon productivity of enforcing a Minimum Wage, quite irrespective of this involving a positive increase of wages. But to enforce a minimum is actually to raise the wages of, at any rate, some of the worst paid operatives. We have, therefore, to consider also the effect on the living human being of the more adequate wages that the enforcement of a legal minimum would involve in the lowest grades. If unrestricted individual competition among the wage earners resulted in the universal prevalence of a high standard of physical and mental activity, it would be difficult to argue that a mere improvement of sanitation, a mere shortening of the hours of labor, or a mere increase in the amount of food and clothing obtained by the workers or their families, would of itself increase their industrial efficiency. But such ideal conditions are far from prevailing in any country. In the United Kingdom at least eight millions of the population—over one million of them, as Mr. Charles Booth tells us, in London alone—are at the present time existing under conditions represented by family earnings of less than five dollars a week. It is notorious that even in the United States there are millions of families unable to earn regularly throughout the whole year as much as ten dollars a week, a sum which does not afford, at present prices, in the slums of New York or Chicago, Pittsburgh or Cincinnati, enough for a physiologically healthy existence. The unskilled, and especially the casually hired laborer, who is inadequately fed, whose clothing is scanty and inappropriate to the season, who lives with his wife and children in a single room in a slum tenement, and whose spirit is broken by the ever-recurring irregularity of employment, cannot by any incentive be stimulated to much greater intensity of effort, for the simple reason that his method of life makes him incapable of either the physical or mental energy that would be involved.

But we have got into the habit of thinking that the productivity of industry depends more upon the efficiency of the brains and machinery employed, than upon the quality of the manual laborers. Let us, therefore, consider the probable effects of a Legal Minimum Wage upon the brain-workers, including under this term all who are concerned in the direction of industry. Here the actual experience of the Factory Acts and of strong Trade Unionism is very instructive. When all the employers in a trade find themselves precluded, by the existence of a Common Rule, from worsening the conditions of employment—when, for instance, they are legally prohibited from crowding more operatives into their mills or keeping them at work for longer hours, or, when they find it impossible, owing to a strictly enforced piecework list, to nibble at wages—they are driven in their competitive struggle with each other, to seek advantage in other ways. We arrive, therefore, at the unexpected result that the enforcement of definite minimum conditions of employment as compared with a state of absolute freedom to the employer to do as he likes, positively stimulates the invention and adoption of new processes of manufacture.

But this is not all. Besides its direct effect in stimulating all the employers, the mere existence of a Legal Minimum Wage has another and an even more important result on the efficiency of industry, in that it tends steadily to drive business into those establishments which are most favorably situated, best equipped, and managed with the greatest ability, and to eliminate the incompetent or old-fashioned employer. The result is a constant tendency for the whole industry to be carried on under the most advantageous conditions. This, of course, from the standpoint of the economist concerned for the utmost possible productivity, is all to the good.

Thus, the probable effect of a Legal Minimum Wage on the organization of industry, like its effect on the manual laborer and the brain-working manager or entrepreneur, is all in the direction of increasing efficiency. Its effect on the personal character of the operative is in the right direction. It in no way abolishes competition, or lessens its intensity. What it does is perpetually to stimulate the selection, for the nation's business, of the most efficient workmen, the best-equipped employers, and the most advantageous forms of industry. It in no way deteriorates any of the factors of production; on the contrary, its influence acts as a constant incentive to the further improvement of the manual laborers, the machinery, and the organizing ability used in industry. In short, whether with regard to labor or capital, invention or organizing ability, the mere existence of a Legal Minimum Wage in any industry promotes alike the selection of the most efficient factors of production, their progressive functional adaptation to a higher level, and their combination in the most advanced type of industrial organization.

What would be the result of a Legal Minimum Wage on the employer's persistent desire to use boy labor, girl labor, married women's labor, the labor of old men, of the feeble-minded, of the decrepit and broken-down invalids, and all the other alternatives to the engagement of competent male adult workers at a full Standard Rate? What would be the effect, in short, upon the present employment, at wages far below a decent level, of workers who at present cannot (or at any rate do not) obtain a full subsistence wage?

To put it shortly, all such labor is parasitic on other classes of the community, and is at present employed in this way only because it is parasitic.

When an employer, without imparting any adequate instruction in a skilled craft, gets his work done by boys and girls who live with their parents and work practically for pocket money, he is clearly receiving a subsidy or bounty, which gives his process an economic advantage over those worked by fully paid labor. But this is not all. Even if he pays the boys or girls a wage sufficient to cover the cost of their food, clothing, and lodging so long as they are in their teens, and dismisses them as soon as they become adults, he is in the same case. For the cost of boys and girls to the community includes not only their daily bread between thirteen and twenty-one, but also their nurture from birth to the age of beginning work, and their maintenance as adult citizens and parents. If a trade is carried on entirely by the labor of boys and girls, and is supplied with successive relays who are dismissed as soon as they become adults, the mere fact that the employers pay what seems a subsistence wage to the young people does not prevent the trade from being economically parasitic. The employer of adult women is in the same case, where, as is usual, he pays them a wage insufficient to keep them in full efficiency, irrespective of what they receive from their parents, husbands, or lovers. In all these instances the efficiency of the services rendered by young persons or women is being kept up out of the earnings of some other class. These trades are therefore as clearly receiving a subsidy as if the workers in them were being given a "rate in aid of wages." The employer of partially subsidized woman or child labor gains actually a double advantage over the self-supporting trades: he gets, without cost to himself, the extra energy due to the extra food for which his wages do not pay, and he abstracts—possibly from the workers at a rival process, or in a competing industry—some of the income which might have increased the energy put into the other trade.

But there is a far more vicious form of parasitism than this partial maintenance by another class. The continued efficiency of a nation's industry obviously depends on the continuance of its citizens in health and strength. For an industry to be economically self-supporting, it must, therefore, maintain its full establishment of workers, unimpaired in numbers and vigor, with a sufficient number of children to fill all vacancies caused by death or superannuation. If the employers in a particular trade are able to take such advantage of the necessities of their workpeople as to hire them for wages actually insufficient to provide enough food, clothing, and shelter to maintain them permanently in average health; if they are able to work them for hours so long as to deprive them of adequate rest and recreation; or if they can subject them to conditions so dangerous or insanitary as positively to shorten their lives, that trade is clearly obtaining a supply of labor force which it does not pay for. If the workers thus used up were horses—as, for instance, on the horse-cars of an old street railroad, or like those that the English stagecoaches formerly "used up" in three years' galloping—the employers would have to provide, in addition to the daily modicum of food, shelter, and rest, the whole cost of breeding and training the successive relays necessary to keep up their establishments. In the case of free human beings, who are not purchased by the employer, this capital value of the new generation of workers is placed gratuitously at his disposal, on payment merely of subsistence from day to day. Such parasitic trades are not drawing any money subsidy from the incomes of other classes. But in thus deteriorating the physique, intelligence, and character of their operatives, they are drawing on the capital stock of the nation. And even if the using up is not actually so rapid as to prevent the "sweated" workers from producing a new generation to replace them, the trade is none the less parasitic. In persistently deteriorating the stock it employs, it is subtly draining away the vital energy of the community. It is taking from these workers, week by week, more than its wages can restore to them. A whole community might conceivably thus become parasitic on itself, or, rather upon its future. If we imagine all the employers in all the industries of the nation to be, in this sense, "sweating" their labor, the entire nation would, generation by generation, steadily degrade in character and industrial efficiency.

It is to prevent this result that every civilized nation has been driven, by a whole century of experiment, to the adoption of stringent factory legislation as regards sanitation and hours of labor. But just as it is against public policy to allow an employer to engage a woman to work excessive hours or under insanitary conditions, so it is equally against public policy to permit him to engage her for wages insufficient to provide the food and shelter without which she cannot continue in health. Once we begin to prescribe the minimum conditions under which an employer should be permitted to open a factory, there is no logical distinction to be drawn between the several clauses of the wage-contract. From the point of view of the employer, one way of increasing his expenses is the same as another, while to the economist and the statesman, concerned with the permanent efficiency of industry and the maintenance of national health, adequate food is at least as important as reasonable hours or good drainage. To be completely effectual the same policy will, therefore, have to be applied to wages. Thus, to the economist, the enforcement of a Legal Minimum Wage appears but as the latest of the long series of Common Rules, which experience has proved to be (*a*) necessary to prevent national degradation; and (*b*) positively advantageous to industrial efficiency.

Does this mean that the enforcement of a Legal Minimum Wage in any sweated industry will involve the destruction of that industry? By no means.

When any particular way of carrying on an industry is favored by a bounty or subsidy, this way will almost certainly be chosen, to the exclusion of other methods of conducting the business. If the subsidy is withdrawn, it often happens that the industry falls back on another process, which, less immediately profitable to the capitalists than the bounty-fed method, proves positively more advantageous to the industry in the long run. This result, familiar to the Free Trader, is even more probable when the bounty or subsidy takes the form, not of a protective tariff, an exemption from taxation, or a direct money grant, but of the privilege of exacting from the manual workers more labor-force than is replaced by the wages and other conditions of employment. The low wages to which, in the unregulated trades, the stream of competitive pressure forces employers and operatives alike, are not in themselves, any more economically advantageous to the industry, than the long hours and the absence of sanitary precautions were to the early cotton mills of Lancashire. If the employers paid more, the labor would be worth more. In so far as this proves to be the case, the legal minimum wage would have raised the Standard of Life without loss of trade, without cost to the employer, and without disadvantage to the community.

The question then arises what effect the prohibition of parasitism would have on the individuals at present working in the sweated trades. We need not dwell on the individual personal hardships incidental to any shifting of industry or change of process. Any deliberate improvement in the distribution of the nation's industry ought, out of regard for these hardships, to be brought about gradually, and with equitable consideration of the persons injuriously affected. But there is no need to assume that anything like all those now receiving less than the Legal Minimum Wage would be displaced by its enactment.

We see, in the first place, that the very leveling up of the standard conditions of sanitation, hours, and wages would, in some directions, positively increase the demand for labor. The contraction of the employment of boys and girls, brought about by the needful raising of the age for full and half-time, respectively, would, in itself, increase the number of situations to be filled by adults. The enforcement of the normal day, by stopping the excessive hours of labor now worked by the most necessitous operatives, and the overtime resorted to whenever it suits the momentary convenience of each particular employer—quite irrespective of whether the community as a whole is in a hurry or not—would automatically absorb the best of the unemployed workers in their own and allied occupations, and would create a new demand for learners. Finally, the abandonment of that irregularity of employment which so disastrously affects the New York outworkers and the London dock-laborers, and indeed most other occupations, would result in the enrolment of a new permanent staff. All these changes would bring into regular work, at or above the Legal Minimum, whole classes of operatives, selected from among those now only partially or fitfully employed. Thus, all the most capable and best conducted would certainly obtain regular situations. But this concentration of employment would, it must be admitted.

imply the total exclusion of others, who might, in the absence of regulation, have "picked" up some sort of partial livelihood. In so far as the persons thus rendered permanently unemployed consisted merely of children removed from industrial work to the schoolroom, few (and certainly no economist) would doubt that the change would be wholly advantageous to natural productivity and economic efficiency. And there are many who would welcome a reorganization of industry, which, by concentrating employment exclusively among those in regular attendance, would tend automatically to exclude from wage-labor, and to set free for domestic duties, an ever-increasing proportion of the women having young children to attend to. There would still remain to be considered the remnant, who, notwithstanding the increased demand for adult male labor and independent female labor, proved to be incapable of earning the Legal Minimum in any capacity whatsoever. We should, in fact, be brought face to face with the problem, not of the unemployed but of the unemployable; those whom no employer would employ at the Legal Minimum even if trade was booming and he could get nobody else.

The unemployable, to put it bluntly, do not and cannot under any circumstances earn their keep. What we have to do with them is to see that as few as possible of them are produced; that such of them as can be cured are (almost at whatever cost) treated so as promptly to remove their incapacity, and that the remnant are provided for at the public expense, as wisely, humanely, and inexpensively as possible.

There remains the question for the economist of the manner in which a Legal Minimum Wage can be best determined and enforced. The object being to secure the community against the evils of industrial parasitism, the minimum wage for a man or a woman respectively ought, theoretically, to be determined by practical inquiry as to the cost of the food, clothing, and shelter physiologically necessary, according to national habit and custom, to prevent bodily and mental deteriorations. Such a minimum would, therefore, be low, and though its establishment would be welcomed as a boon by the unskilled workers in the unregulated trades, it would not at all correspond with the conception of a "living wage" formed by the cotton operatives or the coal miners. Practically, in all but the lowest paid trades, chiefly for women workers, it must in practice be left to the wage earners to settle the Standard Rate and other conditions of employment by Collective Bargaining.

To those not practically acquainted with the organization of industry and Government administration in countries of advanced development the idea of a compulsorily enforced Minimum Wage may seem impracticable. Of course, there will still be people up and down the country who will go on saying that it is "impossible"—while it is in actual operation, not only in Australia, and New Zealand, and the United Kingdom, but under their own eyes! As a matter of fact, the authoritative settlement of a minimum wage is already undertaken daily. Every municipal authority throughout the country has to decide, under the criticism of public opinion, what wage it will pay to its lowest grade of laborers. It can hire them at any price, even at twenty-five cents a day; but it must be rare that any such genuinely "competitive" wage is paid. What happens in practice is that the officer in charge fixes such a wage as he believes he can permanently get good enough work for. In the same way, the National Government of the United Kingdom, which is by far the largest employer of labor in the country, does not take the cheapest laborers it can get, at the lowest price at which they will offer themselves, but deliberately settles its own minimum wage for each department. What is not so generally recognized is that exactly the same change is taking place in private enterprise. The great captains of industry, interested in the permanent efficiency of their establishments, have long adopted the practice of deliberately fixing the minimum wage to be paid to the lowest class of unskilled laborers, according to their own view of what the laborers can live on, instead of letting out their work to subcontractors, whose only object is to exact the utmost exertion for the lowest price. A railroad never dreams of putting its situations up to tender, and engaging the man who offers to come at the lowest wage; what happens is that the rate of pay of trainmen and roadmen is deliberately fixed in advance. The assumption that the wages of the lowest grade of labor must, at any rate, be enough to maintain the laborer in industrial efficiency is, in fact, accepted by all parties, so that the task of an arbitrator in such a case is comparatively easy. Indeed, the fixing of a minimum wage on physiological grounds is a less complicated matter, and one demanding less technological knowledge, than the fixing of a minimum of sanitation, which is done in every Factory Law; and it interferes far less with the day-by-day management of industry or its productivity, than any fixing of the maximum hours of labor, whether of men or women. As a matter of fact, what would happen would be the adoption, as the Legal Minimum, of the wage actually paid by the better establishments, which would be affected only to the extent of finding their competitors put on the same level as themselves.

On all counts, therefore, the modern economist must conclude that the enforcement, throughout each particular trade, of a Legal Minimum of Wages would, like the analogous enforcement of Common Rules as to hours and sanitation by the Factory Law, be calculated to have good, and not bad, economic results on the community as a whole.

212. THE MINNESOTA MINIMUM WAGE LAW OF 1913[1]

AN ACT TO ESTABLISH A MINIMUM WAGE COMMISSION, AND TO PROVIDE FOR THE DETERMINATION AND ESTABLISHMENT OF MINIMUM WAGES FOR WOMEN AND MINORS

Be it enacted by the Legislature of the State of Minnesota:

SECTION 1. There is hereby established a commission to be known as the minimum wage commission. It shall consist of three persons, one of whom shall be the commissioner of labor who shall be the chairman of the commission, the governor shall appoint two others, one of whom shall be an employer of women, and the third shall be a woman, who shall act as secretary of the commission. The first appointment shall be made within sixty days after the passage of this act for a term ending January 1, 1915. Beginning with the year 1915 the appointments shall be for two years from the first day of January and until their successors qualify. Any vacancy that may occur shall be filled in like manner for the unexpired portion of the term.

SEC. 2. The commission may at its discretion investigate the wages paid to women and minors in any occupation in the state. At the request of not less than one hundred persons engaged in any occupation in which women and minors are employed, the commission shall forthwith make such investigation as herein provided.

SEC. 3. Every employer of women and minors shall keep a register of the names and addresses of and wages paid to all women and minors employed by him, together with number of hours that they are employed per day or per week; and every such employer shall on request permit the commission or any of its members or agents to inspect such register.

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[1] Chap. 547, General Laws of Minnesota, 1913.

Sec. 4. The commission shall specify times to hold public hearings at which employers, employees, or other interested persons may appear and give testimony as to wages, profits and other pertinent conditions of the occupation or industry. The commission or any member thereof shall have power to subpoena witnesses, to administer oaths, and to compel the production of books, papers, and other evidence. Witnesses subpoenaed by the commission may be allowed such compensation for travel and attendance as the commission may deem reasonable, to an amount not exceeding the usual mileage and per diem allowed by our courts in civil cases.

Sec. 5. If after investigation of any occupation the commission is of opinion that the wages paid to one-sixth or more of the women or minors employed therein are less than living wages, the commission shall forthwith proceed to establish legal minimum rates of wages for said occupations, as hereinafter described and provided.

Sec. 6. The commission shall determine the minimum wages sufficient for living wages for women and minors of ordinary ability, and also the minimum wages sufficient for living wages for learners and apprentices. The commission shall then issue an order, to be effective thirty days thereafter, making the wages thus determined the minimum wages in said occupation throughout the state, or within any area of the state if differences in the cost of living warrant this restriction. A copy of said order shall be mailed, so far as practicable, to each employer affected; and each such employer shall be required to post such a reasonable number of copies as the commission may determine in each building or other work place in which affected workers are employed. The original order shall be filed with the commissioner of labor.

Sec. 7. The commission may at its discretion establish in any occupation an advisory board which shall serve without pay, consisting of not less than three nor more than ten persons representing the employers, and an equal number of persons representing the workers in said occupation, and of one or more disinterested persons appointed by the commission to represent the public; but the number of representatives of the public shall not exceed the number of representatives of either of the other parties. At least one-fifth of the membership of any advisory board shall be composed of women, and at least one of the representatives of the public shall be a woman. The commission shall make rules and regulations governing the selection of members and the modes of procedure of the advisory boards, and shall exercise exclusive jurisdiction over all questions arising with reference to the validity of the procedure and determination of said boards. Provided: that the selection of members representing employers and employees shall be, so far as practicable, through election by employers and employees respectively.

SEC. 8. Each advisory board shall have the same power as the commission to subpoena witnesses, administer oaths and compel the production of books, papers, and other evidence. Witnesses subpoenaed by an advisory board shall be allowed the same compensation as when subpoenaed by the commission. Each advisory board shall recommend to the commission an estimate of the minimum wages whether by time rate or by piece rate, sufficient for living wages for women and minors of ordinary ability, and an estimate of the minimum wages sufficient for living wages for learners and apprentices. A majority of the entire membership of an advisory board shall be necessary and sufficient to recommend wage estimates to the commission.

SEC. 9. Upon receipt of such estimates of wages from an advisory board, the commission shall review the same, and if it approves them shall make them the minimum wages in said occupation, as provided in section 6. Such wages shall be regarded as determined by the commission itself and the order of the commission putting them into effect shall have the same force and authority as though the wages were determined without the assistance of an advisory board.

SEC. 10. All rates of wages ordered by the commission shall remain in force until new rates are determined and established by the commission. At the request of approximately one-fourth of the employers or employees in an occupation, the commission must reconsider the rates already established therein and may, if it sees fit, order new rates of minimum wages for said occupation. The commission may likewise reconsider old rates and order new minimum rates on its own initiative.

SEC. 11. For any occupation in which a minimum time rate of wages only has been ordered the commission may issue to a woman physically defective a special license authorizing her employment at a wage less than the general minimum ordered in said occupation: and the commission may fix a special wage for such person. Provided: that the number of such persons shall not exceed one-tenth of the whole number of workers in any establishment.

SEC. 12. Every employer in any occupation is hereby prohibited from employing any worker at less than the living wage or minimum wage as defined in this act and determined in an order of the commission: and it shall be unlawful for any employer to employ any worker at less than said living or minimum wage.

SEC. 13. It shall likewise be unlawful for any employer to discharge or in any manner discriminate against any employee because such employee has testified, or is about to testify, or because such employer believes that said employee is about to testify, in any investigation or proceeding relative to the enforcement of this act.

SEC. 14. Any worker who receives less than the minimum wage ordered by the commission shall be entitled to recover in civil action the full amount due as measured by said order of the commission, together with costs and attorney's fees to be fixed by the court, notwithstanding any agreement to work for a lesser wage.

SEC. 15. The commission shall enforce the provisions of this act, and determine all questions arising thereunder, except as otherwise herein provided.

SEC. 16. The commission shall biennially make a report of its work to the governor and the state legislature, and such reports shall be printed and distributed as in the case of other executive documents.

SEC. 17. The members of the commission shall be reimbursed for traveling and other necessary expenses incurred in the performance of their duties on the commission. The woman member shall receive a salary of eighteen hundred dollars annually for her work as secretary. All claims of the commission for expenses necessarily incurred in the administration of this act, but not exceeding the annual appropriation hereinafter provided, shall be presented to the state auditor for payment by warrant upon the state treasurer.

SEC. 18. There is appropriated out of any money in the state, treasury not otherwise appropriated for the fiscal year ending July 31, 1914, the sum of five thousand dollars ($5,000.00), and for the fiscal year ending July 31, 1915, the sum of five thousand dollars ($5,000.00).

SEC. 19. Any employer violating any of the provisions of this act shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished for each offense by a fine of not less than ten nor more than fifty dollars or by imprisonment for not less than ten nor more than sixty days.

SEC. 20. Throughout this act the following words and phrases as used herein shall be considered to have the following meanings respectively, unless the context clearly indicates a different meaning in the connection used:

(1) The terms "living wage" or "living wages" shall mean wages sufficient to maintain the worker in health and supply him with the necessary comforts and conditions of reasonable life; and where the words "minimum wage" or "minimum wages" are used in this act, the same shall be deemed to have the same meaning as "living wage" or "living wages."

(2) The terms "rate" or "rates" shall mean rate or rates of wages.

(3) The term "commission" shall mean the minimum wage commission.

(4) The term "woman" shall mean a person of the female sex eighteen years of age or over.

(5) The term "minor" shall mean a male person under the age of twenty-one years, or a female person under the age of eighteen years.

(6) The terms "learner" and "apprentice" may mean either a woman or a minor.

(7) The terms "worker" or "employee" may mean a woman, a minor, a learner, or an apprentice, who is employed for wages.

(8) The term "occupation" shall mean any business, industry, trade, or branch of a trade in which women or minors are employed.

SEC. 20. This act shall take effect and be in force from and after its passage.

Approved April 26, 1913.

213. MACHINERY AND THE QUALITY OF LABOR[1]

In considering the influence of machinery upon the quality of labor—i.e., skill, duration, intensity, intellectuality, etc., we have first to face two questions—What are the qualities in which machinery surpasses human labor? What are the kinds of work in which machinery displaces man? Now, since the whole of industrial work consists in moving matter, the advantage of machinery must consist in the production and disposition of motive power. The general economies of machinery are—(1) The increased quantity of motive force it can apply to industry; (2) greater exactitude in the regular application of motive force (*a*) in time—the exact repetition of the same acts at regulated intervals, or greater evenness in continuity, (*b*) in place—exact repetition of the same movements in space. All the advantages imputed to machinery in the economy of human time, the utilization of waste material, the display of concentrated force or the delicacy of manipulation are derivable from these two general economies. Hence it follows that wherever the efficiency of labor power depends chiefly upon the output of muscular force in motive power, or precision in the regulation of muscular force, machinery will tend to displace human labor. Assuming, therefore, that displaced labor finds other employment, it will be transferred to work where machinery has not the same advantage over human labor—that is to say, to work where the muscular strain or the need for regularity of movement is less. At first sight it will thus seem to follow that every displacement of labor by machinery will bring an elevation in the quality of labor, that is, will increase the proportion of labor in employments which tax the muscles less and are less monotonous. This is in the main the conclusion toward which Professor Marshall inclines.[1]

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[1] Adapted from J. A. Hobson, *The Evolution of Modern Capitalism*, chap. ix (original edition). Walter Scott Publishing Co.

[On the relation of machinery to immigrant labor see Selection 39. See also Selection 199: "The Attitude of the Typographical Union Toward Machinery."—EDITORS.]

So far as each several industry is concerned, it has been shown that the introduction of machinery signifies a net reduction of employment, unless the development of trade is largely extended by the fall of price due to the diminution in expenses of production. It cannot be assumed as a matter of course that the labor displaced by the introduction of automatic folders in printing will be employed in less automatic work connected with printing. It may be diverted from muscular monotony in printing to the less muscular monotony of providing some new species of luxury, the demand for which is not yet sufficiently large or regular to justify the application of labor-saving machinery. But even assuming that the whole or a large part of the displaced labor is engaged in work which is proved to have been less muscular or less automatic by the fact that it is not yet undertaken by machinery, it does not necessarily follow that there is a diminution in the aggregate of physical energy given out, or in the total "monotony" of labor.

One direct result of the application of an increased proportion of labor power to the kinds of work which are less "muscular" and less "automatic" in character will be a tendency toward greater division of labor and more specialization in these employments. Now the economic advantages of increased specialization can only be obtained by increased automatic action. Thus the routine or automatic character, which constituted the monotony of the work in which machinery displaced these workers, will now be imparted to the higher grades of labor in which they are employed, and these in their turn will be advanced toward a condition which will render them open to a new invasion of machinery.

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[1] *Principles of Economics*, 2d ed., pp. 314, 322.

Since the number of productive processes falling under machinery is thus continually increased, it will be seen that we are not entitled to assume that every displacement of labor by machinery will increase the proportion of labor engaged in lighter and more interesting forms of non-mechanical labor.

Nor is it shown that the growth of machine-production tends to diminish the total physical strain upon the worker, though it greatly lessens the output of purely muscular activity. As regards those workers who pass from ordinary manual work to the tending of machinery, there is a good deal of evidence to show that, in the typical machine industries, their new work taxes their physical vigor quite as severely as the old work. Professor Shield Nicholson quotes the following striking statement from the *Cotton Factory Times:*

> It is quite a common occurrence to hear young men who are on the best side of thirty years of age declare they are so worked up with the long mules, coarse counts, quick speeds, and inferior material, that they are fit for nothing at night, only going to bed and taking as much rest as circumstances will allow. There are few people who will credit such statements; nevertheless they are true, and can be verified any day in the great majority of the mills in the spinning districts.

Schulze-Gaevernitz shows that the tendency in modern cotton-spinning and weaving, especially in England, has been both to increase the number of spindles and looms which an operative is called upon to tend, and to increase the speed of spinning. "A worker tends today more than twice or nearly three times as much machinery as his father did; the number of machines in use has increased more than five-fold since that time, while the workers have not quite doubled their numbers."[1] With regard to speed, "since the beginning of the seventies the speed of the spinning machines alone has increased about 15 per cent."[2]

We are not, however, at liberty to infer from Schulze-Gaevernitz's statement regarding the increased number of spindles and looms an operative tends, that an intensification of labor correspondent with this increase of machinery has taken place, nor can the increased output per operative be imputed chiefly to improved skill or energy of the operative. Much of the labor-saving character of recent improvements, especially in the carding, spinning, and intermediate processes, has reduced to an automatic state work which formerly taxed the energy of the operative, who has thereby been enabled to tend more machinery and to quicken the speed without a net increase of working energy. The general opinion seems to be that in the spinning mills, roughly speaking, 75 per cent of the increased output per operative may be imputed to improved machinery, 25 per cent to increased intensity of labor in regard to quantity of spindles or "speeding up."

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[1] *Der Grossbetrieb*, p. 120.

[2] *Ibid*, p. 117.

Summing up the evidence, we are able to conclude that the shortening of working hours and the improvements in machinery have been attended by an increased effort per unit of labor time. In the words of an expert,

> the change to those actually engaged in practical work is to lessen the amount of hard manual work of one class, but to increase their responsibility, owing to being placed in charge of more machinery, and that of a more expensive kind; while the work of the more lowly skilled will be intensified, owing to increased production, and that from an inferior raw material. I mean that to the operative the improvements in machinery have been neutralized by the inferior quality of raw material used, and I think it is fair to assume that their work has been intensified at least in proportion to the increase of spindles, etc.

The direct evidence drawn from this most highly evolved machine industry seems to justify the general opinion expressed by Professor Nicholson, "It is clear that the use of machines, though apparently labor-saving, often leads to an increase in the *quantity of labor*, negatively, by not developing the mind, positively, by doing harm to the body."[1]

When any muscular or other physical effort is required it is pretty evident that an increased duration or a greater continuity in the slighter effort may tax the body quite as severely as the less frequent or constant application of a much greater bodily force. There can be no question but that in a competitive industrial society there exists a tendency to compensate for any saving of hard muscular or other physical effort afforded by the intervention of machinery in two ways: first, by "forcing the pace"—i.e., compelling the worker to attend more machines or to work more rapidly, thus increasing the strain, if not upon the muscles, then upon the nerves; secondly, by extending the hours of labor. A lighter form of labor spread over an increased period of time, or an increased number of minor muscular exertions substituted for a smaller number of heavier exertions within the same period of time, may of course amount to an increased tax upon the vital energy. It is not disputed that a general result of the factory system has been to increase the average length of the working day, if we take under our survey the whole area of machine-production in modern industrial communities. This is only in part attributable to the fact that workers can be induced to sell the same daily output of physical energy as before, while in many cases a longer time is required for its expenditure. Another influence of equal potency is the economy of machinery effected by working longer hours. It is the combined operation of these two forces that has lengthened the average working day. Certain subsidiary influences, however, also deserve notice, especially the introduction of cheap illuminants. Before the cheap provision of gas, the working time was generally limited by daylight. Not until the first decade of this century was gas introduced into cotton-mills, and another generation elapsed before it passed in general use in manufactories and retail shops.[1] Now a portion of nature's rest has been annexed to the working day. There are, of course, powerful social forces making for a curtailment of the working day, and these forces are in many industries powerfully though indirectly aided by machinery. Perhaps it would be right to say that machinery develops two antagonistic tendencies as regards the length of the working day. Its most direct economic influence favors an extension of the working hours, for machinery untired, wasting power by idleness, favors continuous work. But when the growing pace and complexity of highly organized machinery taxes human energy with increasing severity, and compresses an increased human effort within a given time, a certain net advantage in limiting the working day for an individual begins to emerge, and it becomes increasingly advantageous to work the machinery for shorter hours, or, where possible, to apply "shifts" of workers.[2]

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[1] Babbage, in laying stress on one of the "advantages" of machinery, makes an ingenuous admission of this "forcing" power. "One of the most singular advantages we derive from machinery is the check it affords against the inattention, the idleness, or the knavery of human agents."—*Economy of Machinery*, p. 39; cf. also Ure, *Philosophy of Manufactures*, p. 30.

[1] Porter, *Progress of the Nation*, p. 590.

[2] Cf. Schulze-Gaevernitz, p. 115.

But in the present stage of machine-development the economy of the shorter working day is only obtainable in a few trades and in a few countries; the general tendency is still in the direction of an extended working day. The full significance of this is not confined to the fact that a larger proportion of the worker's time is consumed in the growing monotony of production. The curtailment of his time for consumption, and a consequent lessening of the subjective value of his consumables must be set off against such increase in real wages or purchasing power as may have come to him from the increased productive power of machinery. The value of a shorter working day consists not merely in the diminution of the burden of toil it brings, but also in the fact that increased consumption time enables the workers to get a fuller use of his purchased consumables, and to enjoy various kinds of "free wealth" from which he was precluded under a longer working day.[1] So far as machinery has converted handicraftsmen into machine-tenders, it is extremely doubtful whether it has lessened the strain upon their energies, though we should hesitate to give an explicit indorsement to Mill's somewhat rhetorical verdict. "It is questionable if all the mechanical inventions yet made have lightened the day's toil of any human being." At any rate we have as yet no security that machinery, owned by individuals who do not themselves tend it, shall not be used in such a way as to increase the physical strain of those who do tend it.

> There is a temptation [as Mr. Cunningham says] to treat the machine as the main element in production, and to make it the measure of what a man ought to do, instead of regarding the man as the first consideration, and the machine as the instrument which helps him; the machine may be made the primary consideration, and the man may be treated as a mere slave who tends it.[2]

Now to come to the question of "monotony." Is the net tendency of machinery to make labor more monotonous or less, to educate the worker or to brutalize him? Does labor become more intellectual under the machine? Professor Marshall, who has thoughtfully discussed this question, inclines in favor of machinery. It takes away manual skill, but it substitutes higher or more intellectual forms of skill.[3] "The more delicate the machine's power the greater is the judgment and carefulness which is called for from those who see after it."[1] Since machinery is daily becoming more and more delicate, it would follow that the tending of machinery would become more and more intellectual. The judgment of Mr. Cooke Taylor, in the conclusion of his admirable work, *The Modern Factory System*, is the same. "If man were merely an intellectual animal, even only a moral and intellectual one, it could scarcely be denied, it seems to us, that the results of the factory system have been thus far elevating." Mr. Taylor indeed admits of the operative population that "they have deteriorated artistically; but art is a matter of faculty, of perception, of aptitude, rather than of intellect." This strange severance of art from intellect and morals, especially when we bear in mind that life itself is the finest and most valuable of arts, will scarcely commend itself to deeper students of economic movements.

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[1] Cf. Patten, *The Theory of Dynamic Economics*, chap. xi.

[2] *Uses and Abuses of Money*, p. 111.

[3] *Principles*, p. 315.

The growth of machinery has acted as an enormous stimulus to the study of natural laws. A larger and larger proportion of human effort is absorbed in processes of invention, in the manipulation of commerce on an increasing scale of magnitude and complexity, and in such management of machinery and men as requires and educates high intellectual faculties of observation, judgment, and speculative imagination. Of that portion of workers who may be said, within limits, to control machinery, there can be no question that the total effect of machinery has been highly educative. The growing size, power, speed, complexity of machinery undoubtedly makes the work of this class of workers "more intellectual." Some measure of these educative influences even extends to the "hand" who tends some minute portion of the machinery, so far as the proper performance of his task requires him to understand other processes than those to which his labor is directly and exclusively applied.

Though the quality and intelligence and skill applied to the invention, application, and management of machinery is constantly increasing, practical authorities are almost unanimous in admitting that the proportion which this skilled work bears to the aggregate of labor in machine industry is constantly diminishing. Now, setting on one side this small proportion of intelligent labor, what are we to say of the labor of him who, under the minute subdivision enforced by machinery, is obliged to spend his working life in tending some small portion of a single machine, the whole result of which is continually to push some single commodity a single step along the journey from raw material to consumptive goods?

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[1] *Ibid.*, p. 316.

The factory is organized with military precision, the individual's work is definitely fixed for him; he has nothing to say as to the plan of his work or its final completion or its ultimate use. "The constant employment on one sixty-fourth part of a shoe not only offers no encouragement to mental activity, but dulls by its monotony the brains of the employee to such an extent that the power to think and reason is almost lost."[1]

The work of a machine-tender, it is urged, calls for "judgment and carefulness." So did his manual labor before the machine took it over. His "judgment and carefulness" are now confined within narrower limits than before. The responsibility of the worker is greater, precisely because his work is narrowed down so as to be related to and dependent on a number of other operatives in other parts of the same machine with whom he has no direct personal concern. Such realized responsibility is an element in education, moral and intellectual. But this gain is the direct result of the minute subdivision, and must therefore be regarded as purchased by a narrowing of interest and a growing monotony of work. The ordinary machine-tender, save in a very few instances, e.g., watchmaking, has no general understanding of the work of a whole department. Present conditions do not enable the "tender" to get out of machinery the educational influence he might get.

> Generally speaking [says Dr. Arlidge], it may be asserted of machinery that it calls for little or no brain exertion on the part of those connected with its operations; it arouses no interest, and has nothing in it to quicken or brighten the intelligence, though it may sharpen the sight and stimulate muscular activity in some one limited direction.[2]

The work of machine-tending is never of course absolutely automatic or without spontaneity and skill. To a certain limited extent the "tender" of machinery rules as well as serves the machine; in seeing that his portion of the machine works in accurate adjustment to the rest, the qualities of care, judgment, and responsibility are evolved. For a customary skill of wrist and eye, which speedily hardens into an instinct, is often substituted a series of adjustments requiring accurate quantitative measurement and conscious reference to exact standards. In such industries as those of watchmaking the factory worker, though upon the average his work requires less manual dexterity than the handworker in the older method, may get more intellectual exercise in the course of his work. But though economists have paid much attention to this industry, in considering the character of machine-tending it is not an average example for a comparison of machine labor and hand labor; for the extreme delicacy of many of the operations, even under machinery, the responsibility attaching to the manipulation of expensive material, and the minute adjustment of the numerous small parts, enable the worker in a watch factory to get more interest and more mental training out of his work than falls to the ordinary worker in a textile or metal factory. Wherever the material is of a very delicate nature and the processes involve some close study of the individual qualities of each piece of material, as is the case with the more valuable metals, with some forms of pottery, with silk or lace, elements of thought and skill survive and may even be fostered under machine industry. A great part of modern inventiveness, however, is engaged in devising automatic checks and indicators for the sake of dispensing with detailed human skill and reducing the spontaneous or thoughtful elements of tending machinery to a minimum. When this minimum is reached the highly paid skilled workman gives place to the low-skilled woman or child, and eventually the process passes over entirely into the hands of machinery.

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[1] D. A. Wells, *Contemporary Review*, 1889, p. 392.

[2] *Diseases of Occupations*, pp. 25, 62.

A locomotive superintendent of a railway was recently questioned as to the quality of engine-driving. "After twenty years' experience he declared emphatically that the very best engine-drivers were those who were most mechanical and unintelligent in their work, who cared least about the internal mechanism of the engine."[1] Yet engine-driving is far less mechanical and monotonous than ordinary tending of machinery.

So far as the man follows the machine and has his work determined for him by mechanical necessity, the educative pressure of the latter force must be predominant. Machinery, like everything else, can only teach what it practices. Order, exactitude, persistence, conformity to unbending law—these are the lessons which must emanate from the machine. They have an important place as elements in the formation of intellectual and moral character. But of themselves they contribute a one-sided and very imperfect education. Machinery can exactly reproduce; it can, therefore, teach the lesson of exact reproduction, an education of quantitative measurements. The defect of machinery, from the educative point of view, is its absolute conservatism. The law of machinery is a law of statical order, that everything conforms to a pattern, that present actions precisely resemble past and future actions. Now the law of human life is dynamic, requiring order not as valuable in itself, but as the condition of progress. The law of human life is that no experience, no thought, or feeling is an exact copy of any other. Therefore, if you confine a man to expending his energy in trying to conform exactly to the movements of a machine, you teach him to abrogate the very principle of life. Variety is of the essence of life, and machinery is the enemy of variety. This is no argument against the educative uses of machinery, but only against the exaggeration of these uses. If a workman expend a reasonable portion of his energy in following the movements of a machine, he may gain a considerable educational value; but he must also have both time and energy left to cultivate the spontaneous and progressive arts of life.

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[1] *The Social Horizon*, p. 22.

It is often urged that the tendency of machinery is not merely to render monotonous the activity of the individual worker, but to reduce the individual differences in workers. This criticism finds expression in the saying: "All men are equal before the machine." So far as machinery actually shifts upon natural forces work which otherwise would tax the muscular energy, it undoubtedly tends to put upon a level workers of different muscular capacity. Moreover, by taking over work which requires great precision of movement, there is a sense in which it is true that machinery tends to reduce the workers to a common level of skill, or even of unskill.

> Whenever a process requires peculiar dexterity and steadiness of hand, it is withdrawn as soon as possible from the cunning workman, who is prone to irregularities of many kinds, and it is placed in charge of a peculiar mechanism, so self-regulating that a child can superintend it.[1]

That this is not true of the most highly skilled or qualitative work must be conceded, but it applies with great force to the bulk of lower skilled labor.

But this is by no means all that is signified by the "equality of workers before the machine." It is the adaptability of the machine to the weaker muscles and intelligence of women and children that is perhaps the most important factor. The machine in its development tends to give less and less prominence to muscle and high individual skill in the mass of workers, more and more to certain qualities of body and mind which not only differ less widely in different men, but in which women and children are more nearly on a level with men. The tendency of machine industry to displace male by female labor is beyond all question. Legal restrictions, and in the more civilized communities, the growth of a healthy public opinion, prevent the economic force from being operative to the same degree so far as children are concerned.

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[1] Ure, *Philosophy of Manufactures*, chap. i, p. 19.

The net influence of machinery upon the quality of labor, then, is found to differ widely according to the relation which subsists between the worker and the machine. Its educative influence, intellectual and moral, upon those concerned with the invention, management, and direction of machine industry, and upon all whose work is about machinery, but who are not detailed machine-tenders, is of a distinctly elevating character. Its effect, however, upon machine-tenders in cases where, by the duration of the working day or the intensity of the physical effort, it exhausts the productive energy of the worker, is to depress vitality and lower him in the scale of humanity by an excessive habit of conformity to the automatic movements of a non-human motor. This human injury is not adequately compensated by the education in routine and regularity which it confers, or by the slight understanding of the large co-operative purposes and methods of machine industry which his position enables him to acquire.

214. EMPLOYERS' LIABILITY[1]

I. EMPLOYERS' LIABILITY IN THE UNITED STATES[2]

a) *The law.*—The status of the law of employers' liability in the United States will be discussed briefly, first, in its relation to the common law, then, in regard to legislative enactments, and finally respecting the practical results of its application.

The common-law principles here involved fall under three heads—the law of negligence, the doctrine of assumed risks, and the fellow-servant doctrine.

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[1] Adapted from G. L. Campbell, *Industrial Accident Compensation*, chaps. iv and vi. Houghton Mifflin Co., 1911.

[2] No effort has been made to present an exhaustive study of the subject. A very full statement of the common-law principles and judicial interpretations, together with the text of statutory enactments in the American states, may be found in *Bulletin of the United States Bureau of Labor*, No. 74 (January, 1908).

It has long been recognized in the common law that he whose negligence has led to the injury of a fellow-man may be held financially responsible for damages. This, in brief, is the law of negligence. Linked closely to it is the principle of *respondeat superior*, which was first laid down in 1697 in the case of *Tuberville* vs. *Stampe*. The court asserted that he who chooses the convenience of delegating to others the performance of his personal and business services is as responsible for injuries brought about in doing them as if he were himself the direct agent. In other words, the master must answer for the negligence of the servant. Shortly after this, in the case of *Thomas* vs. *Quartermaine*, the principle of contributory negligence was enunciated. If the plaintiff, it was averred, had so contributed to the causes of the accident that the breach of duty on the part of the defendant was not its proximate cause, then he, the plaintiff, had no ground for action.

The law of negligence is general in its provisions—no distinction is made, up to this point, between those who are servants of the negligent party and those who are not. The servant is the fellow-man of the master, and reasonable precaution against injury is due him. But, in the last two maxims of the common law relating to employers' liability—the doctrine of assumed risks and the fellow-servant doctrine—important distinctions are set up between those who are employees and those who are not, and the accountability of the master for injuries befalling his servants is limited accordingly.

The doctrine of assumed risk was the first of these maxims to be declared. He who knowingly places himself in danger of personal injury by accepting hazardous employment, assumes, therewith, the risk of injury. No one is in a better position to know the dangerous character of his work, says this dogma, than the workman himself. He can therefore demand wages commensurate with the risk involved. If, for any reason, the danger in his particular position is greater than might ordinarily be expected, his legal duty is to give up his employment or to obtain a promise from the employer to make right the abnormal situation. A free citizen, says this legal theory, may work under danger or not, just as he chooses. If he chooses to do so, then he has assumed the risk of injury.

Of these common-law principles, of which two have been discussed, the most noteworthy, curiously enough, did not appear until 1837. In that year the fellow-servant doctrine, a broad amplification of the doctrine of assumed risk, was laid down in deciding the case of

Priestley vs. *Fowler.* It asserts that danger of injury through the negligence of another servant of the same master is a known, common, and ever-present risk of working in company with others, and that consequently—in accordance with the doctrine of assumed risk—a worker so injured has no ground for action against his employer.

These principles of the common law, together with statutory changes and judicial interpretations, form our existing law of employers' liability. The law of negligence and the doctrine of assumed risk had already been transplanted bodily from England into the United States when our law entered upon its independent development. Although the fellow-servant doctrine was not enunciated in England until long afterward, it soon found recognition in American courts—in the case of *Murray* vs. *South Carolina Railway Company,* decided in 1841 in South Carolina, and in *Farwell* vs. *Boston and Worcester Railroad Company,* decided in 1842 in Massachusetts. In deciding the latter case the court said: "These are perils which the servant is as likely to know, and against which he can as effectually guard, as the master. They are perils incident to the service, and which can be as distinctly foreseen and provided for in the rate of compensation as any others."

In almost all the states and territories, modifications and extensions of these common-law doctrines have been made by legislative enactment. A general analysis of these statutory provisions will show the wide variation of the obligations imposed by employers' liability laws in different states.

Statutory changes have been made in all but six of the states and territories, but in only sixteen of these states are the enactments applicable to all servants. In twelve others the laws apply only to railroad employees; in five, to railroad and mine workers, and in one to mine workers only. In addition to these, two commonwealths have made laws applicable only to injuries befalling employees of corporations; one, laws applicable only to factory workers; three, laws applicable only to factory and railroad employees; and another, laws applicable to all "industrial employees." In nine of the states having laws that apply to all servants, the particular hazard of employment on railroads and in mines has been recognized by the inclusion of provisions that bear specifically on cases in which men are injured in one or both of these industries.

In but nine states does legislation specifically hold all employers responsible for defects in ways, works, machinery, or plant that may lead to the injury of employees. In five others such legislation applies to railroad companies only. Nineteen states make provisions for stated safety devices and precautions in factories, on railroads, and in mines, and stipulate that employers be held responsible for injuries arising from non-compliance.

In a majority of the states the law, in so far as it is applicable, makes the employer specifically liable for negligence in superintendence—that is, the negligence of an employee having powers of the master delegated to him. In but four states is the fellow-servant doctrine abolished for employees in all industries. In thirteen it is abolished for railroad employees only, in three for both railroad and mining employees, and in one, for mine workers only. In ten states other than these the doctrine is greatly modified. In all, thirty-two states have enactments of some character relating to this doctrine.

A means much used at one time to evade obligations imposed by employers' liability laws was to require workers, as a condition of employment, to sign papers releasing the employer from any claims that might be made under the provision of such laws. This is known as "contracting out." Twenty-one states expressly provide that, in so far as their liability laws apply, attempts to "contract out" shall be void. Some of the states even attach penalties to the mere act of making such an attempt. In four other states such contracts are barred between railroads and their employees, and one state makes the same prohibition in relation to the mining industry.

b) *Objections to the law.*—Although the common law affecting the liability of the employer for accidents befalling his men has, as thus shown, been greatly modified by statutory enactments in many states, the judge-made laws concerning negligence, assumed risks, and the fellow-servant are still dominant. If the social and industrial conditions under which these principles were first promulgated were not greatly different from the conditions under which productive enterprises are conducted at the present time, the need for studying the problem of compensation for accidents would be less apparent. But the tremendous expansion of systems of production that has marked the development of modern industrialism has had two important results—increased danger to the worker, and lessened personal contact with fellow-workers and with employers. Modern creative processes have brought multitudes of workers into direct contact with ponderous implements of production that render their occupations extremely dangerous, and have also made expedient, if not necessary, complicated relations between owners, managers, superintendents, foremen, and employees. In these modern industrial organizations the common worker may be far removed from fellow-employees and employer, and thus his individual importance and responsibility is often reduced to a minimum.

Of this extraordinary change in a society which it is intended to serve, the law of employers' liability has failed to take cognizance. In its absurd respect for precedent, the law assumes the conditions of a bygone age. The burden of injury, says the law of negligence, must be borne by the individual responsible for it; yet the majority of accidents today are chargeable to conditions, not to men. The danger of injury, says the doctrine of assumed risks, may be better known and provided against by the employee than by the employer; but, in a time of supervision by technical men and of untrained labor, the reverse is more often true. A habitually negligent man, says the fellow-servant doctrine, may be detected by his fellow-workers more readily than by his employer, and, as a consequence, they are better situated to guard against his careless acts. But this too is a doctrine of the past. In an age when the negligent fellow-servant may be a telegraph operator whom the railroad trainman never saw, or a hoisting engineer who speaks a different language from that of the foreign-born miner whose life depends upon his reliability, the utter absurdity of this contention is made fully evident.

More than this, there are no outgrown principles, such as the doctrine of assumed risk and the fellow-servant doctrine, that may be brought to the aid of the injured worker. The employer alone may profit from the application of archaic legal dogmas, for the common law of employers' liability was apparently developed under a philosophy of social expediency that protected the man of property against the claims of the irresponsible plebeian. Whatever may have been the defense of such a policy at a time when capital was limited and the conditions of industry more simple, its projection into the life of the present is indefensible.

Even if we grant the comfortable fiction that the law arbitrates impartially in liability cases, the great difference in the ease with which employer and employee may follow its intricate processes has seriously handicapped the latter. The principal obstacles are the uncertainty, the expense, and the delay of litigation—all of which fall most heavily upon the plaintiff. A large employer may, in the knowledge that his average of losses is low, accept serenely an adverse decision. There is no law of averages to console the injured employee or his dependents. The loss of his suit at law, like the loss of his earning power, is a blow that falls but once. The employee is usually obliged to engage his attorney upon the basis of a contingent fee, and therefore secures less expert service than does the employer in return for the sum expended. Court fees are often difficult for the plaintiff to pay, and, as each step in the long proceedings calls for additional expenditure, the temptation grows greater and greater to settle for a small sum, or to abandon the unequal contest. The slow processes of the law work no hardship upon the defendant employer, but for the injured worker or his dependents it is often a starving-out process, effective in forcing an inequitable settlement. The law, in short, has so many technicalities, its defenses for the employer are so strong, and its processes are so slow, that worthy claimants with little means have but a meager chance of just consideration.

The common law of liability, an outgrowth of the past, is no longer in harmony with the social organism it aims to serve, while statutory modifications in many states have been inadequate to remedy its deficiencies. Says Elihu Root, "The present law is foolish, wasteful, ineffective, and barbarous." Its absurd protection of property rights at the expense of human interests must lead, sooner or later, to its radical modification, if not to its complete overthrow.

II. A PROGRAM OF REFORM

The study of the situation at home and abroad suggests a program for reform, and its ultimate accomplishment should be held constantly in view.

a) *Employers should be held accountable for the safety of surroundings and equipment.* This is now recognized in Great Britain, and in most of the states of Continental Europe. In nine American states this principle is applied to all industries; in five others, to railways; and in nineteen more, responsibility is thrown upon employers who fail to comply with legal requirements concerning stated safety devices and precautions. Its general acceptance in the United States would largely abolish the doctrine of assumed risk, and greatly reduce litigation.

b) *Employers should be held accountable for the negligent acts of their employees.* This principle also is accepted in most of the countries of Europe and in three American states. In ten others it is recognized in part, and in eighteen more it applies to specified industries. Its general acceptance would abolish the fellow-servant doctrine and restore the principle of *respondeat superior* to the full range of legal application that it should properly have.

c) *The employer's defense of contributory negligence should be denied.* The workingman's environment makes constant care impossible, and this general defense against liability works grave injustice. Industry should bear its inevitable accident losses, as it bears its inevitable fire losses and maintenance charges. No part of the burden should be thrown upon those whose earning power is sacrificed. In most European nations only such contributory negligence as is wilful, unreasonable, or unlawful bars the victim from the right to compensation, and recognition of the same principle should be an early reform in American legislation.

d) *Employers should be held accountable for unpreventable accidents.* In spite of all possible precaution, many workingmen are sure to be killed and injured. Neither employers nor employees are at fault in such cases, but since such accidents seem necessary in the creation of economic goods, the burden should be placed, through the employer, upon the ultimate consumer of the finished product. This principle is fully recognized in Europe, and is faintly suggested by a recent law in Montana. Its general acceptance in the United States together with the recognition of the first and second principles outlined, would completely abolish the doctrine of assumed risk.

e) *Employers should bear the burden of proof.* By the English Act of 1897 it is made the part of the employer to show that the law is not applicable to the case in question, and the same principle has been partially accepted on the Continent. Two American states throw the burden of proof on the employer in railroad cases. The victim of the accident is invariably the weaker party to the controversy, and the general acceptance of this principle would make workingmen more secure in the rights conferred by other reforms.

f) *Compensations should be paid according to a definite scale fixed by law and varying according to the age and pecuniary situation of dependents.* The principle of fixed compensation was recognized by the English Act of 1897; it has spread to the British colonies, and the definite but variable scale of payments and pensions is a meritorious feature of the compensation laws of the states on the Continent. In America a few states set maximum limits to the liability of employers on account of any one casualty, but that is all. One of the most flagrant abuses under the existing system of law is the spirit of speculation that is fostered by the ever dazzling possibility of a large award. The establishment of a definitely variable scale, together with the greater certainty of award that would be lent by the other reforms outlined, would go far in reducing the volume and expense of litigation. Fewer cases would come to trial, and jury awards would be more readily accepted without appeal.

g) *Payment should be guaranteed by adequate insurance.* A great catastrophe or some other cause often leads to the insolvency of the employer at a time when the injured men and their dependents are most in need of assistance. Certain methods of guarantee are therefore used in Germany, Austria, France, and Italy, and more or less effective plans are followed in other countries. First lien on assets and compulsory state insurance are most frequently resorted to. The statutes of Massachusetts and New York provide that any employer may partially disburden himself of liability by insuring his men in private insurance companies, but he is not obliged to do so. In Montana a law passed in 1909 provides a special tax of 1 per cent on the earnings of coal-miners and of one cent per ton on all coal mined. The proceeds make up a state fund for the generous compensation of accidents in the coal-mining industry. Efforts to compel employers to insure their men against accident would be met with active resistance in the United States, and requirements as rigid as those of Germany and Austria would be justly condemned by public opinion. But to secure its citizens in their personal rights is a proper police function of the state, and our laws should insist that employers, at their own expense, insure their men for the amount of the stipulated compensations. Such guarantee should be by insurance in private, mutual, or governmental casualty concerns, or by the deposit of approved securities.

h) *Compensation payments should be conserved.* Many persons left dependent are incompetent to care for large sums of money suddenly acquired. Courts of proper jurisdiction should be given authority to determine whether lump payments should be made or the sum invested in annuities. The pension systems of the continental European states are rich in the suggestion of administrative methods for accomplishing this purpose.

The incorporation of these principles into the American law of employers' liability will be found a long and difficult process, for many obstacles exist, both in social and economic conditions and in constitutional law and judicial fancy. It is doubtful if adequate legislation can be enacted in many states without constitutional amendments, and it is not improbable that an amendment to the federal constitution will be found necessary. But the outlook is hopeful. Twelve years ago it was said of workmen's compensation, "The very principles involved are not as yet even comprehended in the United States." Public interest has since been aroused by the results of wide research; close attention has been turned upon every phase of the subject, and it is one of the leading topics before the American people at the present time. Employers, insurance men, lawyers, legislators, jurists, publicists, and leaders in social reform are focusing attention upon the question with a unanimity of interest that is almost unprecedented. It was a live issue before the last meeting of the National Civic Federation; it is constantly before associations of manufacturers and other bodies of employers, and there have been held within a year three national conferences upon this question alone. During the early months of 1909, changes in the law were under consideration in at least seventeen states. Significant amendments have been passed in some, while in others, notably in New York, Wisconsin, Minnesota, and Illinois, special commissions are making, or have completed, more or less exhaustive studies. In addition to this, two of the largest American employers, the United States Steel Corporation and the International Harvester Company, have instituted accident relief plans that are strikingly similar to the compulsory insurance and compensation systems of continental Europe.

The situation presents a problem in the equitable distribution of the fruits of industry. Production commands a sufficient economic return to meet all of its legitimate charges, and a reasonable portion should be turned to the account of those unfortunates whom industrial accidents leave without means of livelihood. The costs fall with crushing force upon the individual victims. If these costs were to fall upon the enormous capital and tremendous earning power of the industrial world, they would seem insignificant. Yet absurd legal precedents set up generations ago, and now dishonored at their source, are effective barriers against proper distribution. Legislation that pulls down these barriers will add much to the security, contentment, and efficiency of the workers of American industry.

215. A SURVEY OF WORKINGMEN'S INSURANCE IN THE UNITED STATES[1]

There are already various systems of industrial insurance in the United States which witness to the universal sense of need of such protection even among those workers who have least developed habits of thrift. These imperfect and unrelated schemes are yet to be developed, co-ordinated, regulated, and combined so as to form a consistent, comprehensive, and adequate system. The hope of progress lies in these germinal beginnings, and the problem immediately before the nation is one of synthesis.

Is universal insurance an economic possibility? A complete answer to this question would require extended discussion. A few things may be suggested. The profit fund could carry a very large share of the burden, as shown by the fact that employers are marvelously prosperous, and by the fact that even now, though in a very uncertain way, they set apart a vast sum for helping workmen in times of disability in the form of contributions to sickness funds, hospitals, physicians, and gifts to families in distress, not to speak of taxes for public relief and enormous costs for casualty insurance and litigation, which is now waste. The wages fund could bear a much heavier drain for insurance if we can judge from the immense sums spent by workmen for objects which are destructive to health and morals. It is true that the unskilled workmen have no margin for adequate insurance, and those who cannot supply even the immediate necessities of existence can hardly be expected to provide for the future without help from the profit fund and from consumers.

Systems and schemes of industrial insurance.—(1) The workingmen have themselves created organizations for insurance, and thereby express a universal sense of need of this protection; local mutual benefit societies, with or without aid from employers, national brotherhoods or fraternals, and trade-unions with local branches. (2) Employers have promoted the movement by various methods: local societies of employees, insurance departments of great firms or corporations, contracts between firms and casualty companies, pension schemes of employing corporations. (3) Private insurance companies which sell sickness and accident insurance to workmen, "industrial insurance companies," collecting small premiums weekly or monthly, and furnishing chiefly burial benefits to the low-paid workmen, and regular life insurance to those who have higher wages. (4) Organizations of municipal, state, and federal employees for pension funds, as those of teachers, firemen, policemen; the national and state military pensions; homes for invalid veterans. Here also may be counted as auxiliary and supplementary government activities, poor relief, liability laws, protective factory laws and inspection, and state supervision of fraternal societies and insurance corporations. Every one of these agencies and organizations represents some beginning of a movement toward obligatory insurance. The cities have already recognized their duty to care for the policemen, firemen, and teachers; and it will be difficult to answer the question of other employees of cities, many of them far more in need of protection, why they should not be included. The nation and the states have already declared it to be our duty to shelter the aged and wounded soldier; why should the victims of the "army of labor" be neglected? They also have served their country in occupations even more dangerous and destructive than war, and quite as useful. Public poor relief has already acknowledged the duty of the community to support its members who are incapable of labor; but experience has taught that this method tends to humiliate and degrade the recipients and it is manifestly better from every point of view to prevent the need of appeal to poor relief by creating an insurance fund so far as this is possible.

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[1] Adapted from C. R. Henderson, *Industrial Insurance in the United States*, chap. xii. The University of Chicago Press, 1909.

Sickness insurance.—The present organs of sickness insurance are: local mutual benefit societies, lodges of the trade-unions and fraternal societies, relief departments of railroads, and casualty companies. Naturally this form of insurance is most widely developed among the workmen of cities. Everywhere the organization is voluntary, unless we may speak of constraint to enter the relief departments and other similar arrangements as a condition of employment as compulsion. The local societies are seldom united in groups, and each bears its burden alone. Central direction and supervision by the state are unknown. The lodges of the fraternal societies and of some of the trade-unions work under control from a central legislature. The administration of the relief departments is in the hands of committees representing both employers and employees. Those who simulate sickness are discovered by medical examination, or by visits of committees. None of these agencies rests on a strictly scientific basis approved by actuaries. Even the rates of the insurance companies rest chiefly on empirical foundations, may be changed at any time, and are determined largely by competition. Frequently the companies regard each other with such suspicion that a common registration is said to be impossible; a fact much to be regretted, since a comparison of experience would aid in giving the movement the light of the widest and most varied experience. For the settlement of disputes between members and the directors, or between holders and companies, the courts are open; but this is a way too costly and tedious to be taken into consideration. It would be one of the advantages of compulsory insurance that the state could provide a simple and inexpensive arrangement for hearing and deciding cases impartially.

Accident insurance.—The employers' liability law remains in its ancient limits; it is behind the British compensation act of 1897 and much farther behind the German insurance law of 1884. The principle that social care in any explicit way is a duty of the community has never been openly recognized. The injured man stands at once over against his employer as an enemy seeking damages even of a punitive character. Before he can recover damages he must prove, with the presumption against him, that the injury can be traced to the negligence of the employer and is actually due to such negligence. Compulsory insurance or even compensation is not a part of the legal provisions. Voluntary organizations, fragmentary and unfair in character, are further developed with the railroads than elsewhere. In agriculture there is hardly a discoverable attempt in this direction.

The railroads have generally sought to insure their employees either through agreements with casualty companies or by relief departments; but the employees must carry the greater part of the burden. The employers in other dangerous trades have often organized accident insurance, but generally the schemes load the employees with premiums, cover only a part of the real loss, and lack full actuarial basis. There is nowhere state supervision, or direction, no obligation to insure, no unity or uniformity of method; mostly anarchy. The administration varies with the form of organization: in the mutual benefit associations the matter is directed by a committee with officers and clerks; in the trade-unions the lodge governs the direction; and in casualty companies all is administered by the central office.

Payment of income of funds.—In the relief departments of railroads and in the casualty companies the fund is provided by payment of premiums at intervals in advance. No example has been found of groups of employers federated to provide accident insurance; and, indeed, the motive is lacking for such organization. It is significant that employers have organized such associations for fire insurance, in competition with the companies, and these seem to have worked well. The assessment plan of payment is customary in some life insurance companies, in fraternal societies, and in trade-unions, certain sums being levied at a death or at intervals during the year. In settlement of disputes we have only contracts, conferences, and, in the last resort, the lawsuit.

Old age and invalidism.—A few of the trade-unions have begun to establish funds for old-age retirement benefits. The fraternal societies exhibit a serious defect at this point. Under their system they can carry life insurance only to the region of old age and then the "brother" must care for himself, a very inconsistent kind of fraternity, yet inseparable from present methods. The Mutualists of France have gone much farther in meeting this difficulty by establishing funds for old age and invalidism. Some of the railroad corporations and even private firms have founded funds for old-age pensions and this movement seems to be growing in the country. Cities have pension funds for policemen, firemen, and to some extent for teachers. The nation and the states have made the old age of veterans comfortable. It is perfectly clear that the common laborers of cities can never on present wages provide for old age without help of employers and the public; the outlook is simply hopeless. The income of the workingmen of cities is too small and too irregular to warrant any unaided attempt to provide for the last period of life. In the United States there is no example even of state subsidies to encourage voluntary associations, as in France and in Belgium. Powerful and wealthy corporations, as railroads, canals, ship builders, have not been above asking the government for subsidies to aid "infant industries," even when those industries have become aged and corpulent, but they would brand any attempt to subsidize old-age funds for workingmen as rank "socialism."

Various are the methods of providing funeral funds and life insurance. The poorest workmen of America count among their most necessary expenses the premiums which will provide money for a respectable funeral. Sickness and accident insurance come later, and the contingency of need in old age is to their imagination far more remote. The colossal sums poured annually from slender incomes into the coffers of the "industrial insurance" companies are witness of the spirit of sacrifice which is inspired by the sentiment of repugnance to burial at public expense. The benefit departments of the fraternal societies and fraternal insurance societies prove the interest of skilled artisans in providing for future wants by insurance.

Comparatively little has been done for unemployment insurance. Apart from occasional gifts of cities, or hastily planned emergency works, the public has manifested no interest in this burning question. During the past years of unexampled and long-continued prosperity the occasion for such insurance has not been so clear as it would be in a period of depression.

216. SUMMARY OF WORKINGMEN'S INSURANCE LAWS IN GERMANY[1]

STATISTICS FOR 1907

	Form of Insurance and Date of Statutes	Persons Insurable	Character of Insurance Organization and Numbers Insured	Contributions (Yearly)	Benefits	Settlement of Disputes
Accident Insurance	Compulsory insurance Laws of 1884–1887 and 30, 6, 1900	Workmen irrespective of wages and inferior managing officials with yearly wages up to $750 in industry and manufacture. Also by special rule—employees with wages over $750 and small employers	Mutual trade associations and state executive boards for state employees	By employers alone	(a) Free medical treatment and pension up to 66⅔ per cent of yearly wages; or free hospital treatment with relief to family up to 60 per cent of wages—from the 14th week after accident (b) Burial expenses up to 20 times daily wages and pension to survivors up to 60% of wages. Total compensations = 37,772,648 to 980,044 persons; $38.44 per injured workman	Free arbitration court and Imperial Insurance Office with equal representation of employers and workmen
	Voluntary insurance (by same laws)	Employers and persons not under compulsion Population 62,100,000; 15,400,000 wage-earners	114 trade associations and 535 executive boards; 5,383,519 establishments and 21,172,027 insured	Premiums = $42,890,350; $2.03 per workman, $7.96 per establishment		
Sickness Insurance	Compulsory insurance Laws of 15, 6, 1883; 10, 4, 1892; 5, 5, 1886; 30, 6, 1900; 25, 5, 1903	Workmen and employees in industry and commerce (with yearly earnings up to $500), and by special ruling to workers in agriculture and home industries	Mutual sickness societies established by law and private friendly societies	Employers ⅓ } Workmen ⅔ } of (1½–6)% of wages	(a) Medical treatment and sick pay (50 per cent of average daily wages) or free hospital treatment and one-half sick pay for the family for 26 weeks (b) Similar benefits for confinements for 6 weeks (c) Funeral expenses, 20 times average daily wages. Extension of above minimum benefits by special rules $13.75 per year per sick member; $ .70 per sick day	Free, by supervising magistrates
	Voluntary insurance (by same laws)	Persons not obliged to insure with yearly earnings up to $500 Population 62,100,000; 15,400,000 wage-earners	23,232 societies; 12,480,502 members (inclusive of 758,706 miners)	Without contributions of employers $4.29 by insured workman; $1.90 by employers per insured workman		
Old Age and Invalidity Insurance	Compulsory insurance Laws of 22, 6, 1889; 13, 7, 1899	All wage-earners and employees with yearly wages up to $500. Also, small employers and house workers by order of the Bundesrat Population 62,100,000; 15,400,000 wage-earners	Territorial insurance institutions 41 institutions and 14,958,118 insured	Equal premiums of employers and employed with an annual state subsidy of $12.50 per pension $1.50 by workman; $1.50 by employers per workman; $.83 by state per workman; $3.83 total annual premium	(a) Invalidity pension after 200 contributory weeks (b) Old age pension from 70th year after 1200 contributory weeks (c) Free treatment and relief to family to prevent invalidity (d) Return of premiums in case of death, accident, or marriage before pension is due Average invalidity pension $41.50; old age pension $40; sickness pension $62	Free by Arbitration Court and Imperial Insurance Office with equal representation of employers and employed

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[1] From L. K. Frankel and M. M. Dawson, *Workingmen's Insurance in Europe*, pp. 424–29. Charities Publication Committee, 1910.

XVII. INTEREST

217. THEORIES OF INTEREST

I[1]

Early Theories.—An objection, formerly common, to the practice of taking interest was that interest is "unnatural." The word employed among the Greeks to signify interest or usury was τόκος, "offspring"; and Aristotle declaimed against the taking of interest, on the ground that money could not have "offspring"—a curious instance of the influence of terminology on thought.

Interest-taking between Jews was forbidden by the Mosaic laws, and similarly, in Rome, interest-taking between Romans was prohibited. Many biblical texts show the hostile attitude of the writers, both in the Old and New Testaments, toward the practice, and the Church Fathers through the Middle Ages for over a thousand years waged a ceaseless but fruitless war against interest-taking. St. Thomas Aquinas stated that interest was an attempt to extort a price for the use of things which had already been used up, as for instance, grain and wine. He also declared that interest constituted a payment for *time*, and that time was a free gift of the Creator to which all have a natural right.

The unpopularity of interest-taking increased until the thirteenth century; but the practice persisted, and as business operations increased in importance, certain exemptions and exceptions from its general prohibition were secured. Pawnshops banks, and money-lenders were specially licensed, and permission was granted for buying annuities, and taking land on mortgage for money loaned. One of the subterfuges by which the allowance of interest was excused suggests the true idea of interest as an index of the relative preference for present over future goods. It was conceded that, whereas a loan should be nominally without interest, yet when the debtor delayed payment, he should be fined for his delay (*mora*), and the creditor should receive compensation in the form of *interesse*. Through this loophole it became common to make an understanding in advance, by which the payment of a loan should be "delayed" year after year, and with every such postponement a "fine "should become payable.

[1] From Irving Fisher, *The Rate of Interest*, pp. 4–7. The Macmillan Co., 1907.

Some of the Protestant reformers, while not denying that interest-taking was wrong, admitted that it was impossible to suppress it, and that it should therefore be tolerated. This toleration was in the same spirit as that in which many reformers today defend the licensing of vicious institutions, such as saloons, racetracks, lotteries, and houses of prostitution.

In the sixteenth century interest-taking began to find some definite champions. Calvin attempted to discriminate between interest-taking which was right and interest-taking which was wrong. Among the wrong kinds he classed the taking of interest from the poor and from those in urgent need, and the taking of interest in excess of a legal maximum.

In order to defend interest, its champions began to construct theories to account for the phenomenon. Most of these early theories were little more than a shifting of the problem. It was seen that capital earned income whether it was lent or not. The income which a lender obtains through a loan contract may be called *explicit interest;* but it was clear that the borrower was enabled to pay this interest because the capital which he borrowed earned it for him. The income which capital thus earns may be called *implicit interest.* The earliest attempt to construct a theory of interest merely explained explicit interest in terms of implicit interest. Salmasius and Locke, both in the seventeenth century, attempted thus to explain interest. They tried to justify the taking of interest in a loan on the ground that an equivalent to that interest was obtained by the borrower from the capital he borrowed, and might have been obtained by the lender of the capital had he retained it. If, they said, a man lends $1000, he is entitled to interest upon it because, had he used it in business himself, he could have made profits by means of it. But beyond the bare statement that unlent capital yields income, these theories did not go. The real problem—"why capital yields income to the user"—was left untouched.

The theories just described are for the most part obsolete today; yet we have a number of other theories almost equally crude. If a modern business man is asked what determines the rate of interest, he may usually be expected to answer, "the *supply and demand* of loanable money." But "supply and demand" is a phrase which has been too often forced into service to cover up difficult problems. Even economists have been prone to employ it to describe economic causation which they could not unravel. It was once wittily remarked of the early writers on economic problems, "Catch a parrot and teach him to say 'supply and demand,' and you have an excellent economist." Prices, wages, rent, interest, and profits were thought to be fully "explained" by this glib phrase. It is true that every ratio of exchange is due to the resultant of causes operating on the buyer and seller, and we may classify these as "demand" and "supply." But this fact does not relieve us of the necessity of examining specifically the two sets of causes, including utility and its effect on demand, and cost in its effect on supply. Consequently, when we say that the rate of interest is due to the supply and demand of "capital" or of "money" or of "loans," we are very far from having an adequate explanation. It is true that when merchants seek to discount bills at a bank in large numbers and for large amounts, the rate of interest will tend to be high, and that when merchants do not apply in large numbers and for large amounts, the rate of interest will tend to be low. But we must inquire for what purposes and from what causes merchants thus apply to a bank for the discount of loans, and why it is that some apply to the bank for loans and other supply the bank with funds to be loaned. The real problem is: What causes make the demand for loans, and what causes make the supply? This question is not answered by the summary "supply and demand" theory. The explanation is not simply that those who have much capital supply the loans and those who have little demand them. In fact, the contrary is quite often the case. The depositors in savings banks are the lenders, and they are usually poor, whereas those to whom the savings bank in turn lends the funds are relatively rich.

II[1]

The essential features as regards our problem, are that, over a year's time, manufactured products are sold at a price which not only covers the value of raw materials, reimburses the various wages of manual and intellectual labor, and replaces the fixed capital as worn out, but leaves over that amount of value which is divided out among the capitalist shareholders as interest. In normal capitalist production, that is to say, not only is the value of capital consumed in the production process replaced, but a surplus of value appears. It has not always been perceived by economists that this surplus value is the essential phenomenon of what we call interest—that interest on capital consists of this very surplus value and nothing else—but whenever it is perceived the question almost suggests itself: What does this surplus value represent? Is it merely a surplus, or is it of the nature of a wage? In other words, is it something obtained either by chance or force, and corresponding to no service rendered by anybody or anything; or is it something connected with capital or the capitalist that, economically speaking, deserves a return or a wage?

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[1] Adapted from William Smart's Translator's Preface to *Capital and Interest*, by Eugen von Böhm-Bawerk, pp. vii–xvii. Macmillan & Co., 1890.

A little consideration will show that the idea of a "mere surplus" is untenable. When a manufacturer engages his capital in production he, as it were, throws it into solution, and risks it all on the chance of the consuming public paying a certain price for the products into which his capital is transformed. If they will not pay any price at all the capital never reappears; even the labor, which bound up its fortunes with the materials and machinery of manufacture, loses its wage, or would do so except for the wage contract which pays labor in advance. If the consumers, again, will only pay a price *equal to* the value of the capital consumed, the various workers, including the employer proper, will get their wage and the value of the capital itself will be unimpaired, but there will be no interest. It is only if the consumers are willing to pay a higher price that capital can get its interest.

The surplus then may be assumed to represent something contributed by the capital to the value of products. This view is supported by the common consciousness of practical men, who certainly believe that capital plays a distinct and beneficent rôle in production.

If, now, we appeal to the common consciousness to say what it is that capital does, or forbears to do, that it should receive interest, we shall probably get two answers. One will be that the owner of capital contributes a valuable element to production; the other, that he abstains from using his wealth in his own immediate consumption. On one or other of these grounds, the capitalist is said to deserve a remuneration, and this remuneration is obtained by him in the shape of interest.

Now it might possibly be the case that both answers point to elements indispensable in the explanation of interest, but a slight consideration will show that the two answers are very different from one another. The one is positive—that capital does something; the other negative—that the capitalist abstains from doing something. In the one case interest is a payment for a tool; in the other, a recompense for a sacrifice. In the one case the capitalist is paid because the capital he lends produces, or helps to produce, new wealth; in the other he is paid because he abstains from diminishing wealth already produced. The first answer is the basis of the Productivity theories and of the Use theories; the second is the basis of the Abstinence theory.

The argument of the *Productivity theory* may be put thus: Human labor, employing itself on the materials given free by nature, and making use of no powers beyond the natural forces which manifest themselves alike in the laborer and in his environment, can always produce a certain amount of wealth. But when wealth is put into the active forms of capital—of which machinery may be taken as instance and type—and capital becomes intermediary between man and his environment of nature, the result is that the production of wealth is indefinitely increased. The difference between the results of labor unassisted and labor assisted by capital is, therefore, due to capital, and its owner is paid for this service by interest.

The simpler forms of this theory (where capital is credited with a *direct power* of creating value, or where surplus of products is tacitly assumed to be the same thing as surplus of value) Böhm-Bawerk has called the Naïve theory. The more complex formulations of it —where, for instance, emphasis is laid on the displacement of labor by capital, and interest is assumed to be the value formerly obtained as wage, or where prominence is given to the work of natural powers which, though in themselves gratuitous, are made available only in the forms of capitalist production—he has called the Indirect theories.

If, however, we demand an answer to what we have formulated as the true problem of interest, we shall make the discovery that the Productivity theory has not even put that problem before itself. The amount of truth in the theory is that capital is a most powerful factor in the production of wealth, and that capital, accordingly, is highly valued. But to say that capital is "productive" does not explain interest, for capital would still be productive although it produced no interest; e.g., if it increased the supply of commodities the value of which fell in inverse ratio, or if its products were, both as regards quantity and value, greater than the products of unassisted labor. The theory, that is to say, explains why the manufacturer has to pay a high price for raw materials, for the factory buildings, and for machinery—the concrete forms of capital generally. It does not explain why he is able to sell the manufactured commodity, which is simply these materials and machines transformed by labor into products, at a higher price than the capital expended. It may explain why a machine doing the work of two laborers is valued at £100, but it does not explain why capital of the value of £100 *now* should rise to the value of £105 twelve months *hence;* in other words, why capital employed in production regularly increases to a value greater than itself. It cannot be too often reiterated that the theory which explains interest must explain *surplus value*—not a surplus of products which may obtain value and may not; not a surplus of value over the amount of value produced by labor unassisted by capital; but a surplus of value in the product of capital over the value of the capital consumed in producing it.

I confess I find some difficulty in stating the economic argument of what Böhm-Bawerk has called the *Use theory* of interest, and I am almost inclined to think that he has done too much honor to some economists in ascribing to them this theory, or, indeed any, definite theory at all.

It is of course a familiar expression of everyday life that interest is the price paid for the "use of capital," but most writers seem to have accepted this formula without translating it. If the formula, however, is considered to contain a scientific description of interest, we must take the word "use" in something like its ordinary signification, and consider the "use of capital" as something distinct from the capital itself which affords the use. The loan then will be a transfer and sale of this "use," and it becomes intelligible how, at the end of the loan period, the capital lent is returned undeteriorated in value; it was not the capital that was lent, but the use of the capital. To put it in terms of Bastiat's classical illustration: James, who lends a plane to William, demands at the year's end a new plane in place of the one worn out, and asks in addition a plank, on the ostensible ground that over a year William had the advantage, the use of the plane.

If, however, we look carefully into this illustration, we shall see that William not only had the use of the plane but the plane itself, as appears from the fact that the plane was worn out during the year. Here then the using of the plane is the same thing as the consumption of the plane; payment for a year's "use" is payment for the whole capital value of the plane. Yet the payment demanded at the year's end is not the capital value of the plane, the sum lent, but also a surplus, a plank, under the name of interest. To put it another way:

If William on the 1st of January had bought the plane outright from James, he would have paid him on that date a value equivalent, say, to a precisely similar plane; he would have had the "use" of the plane over 365 days; and by 31st December the plane would have been consumed. As things are, he pays nothing on 1st January; he has the use of the plane over the year; by 31st December the plane is consumed; and next day he has to pay over to James a precisely similar plane plus a plank. The essential difference between the two transactions is that, on 1st January the price of the plane is another similar plane; on 31st December it is a plane plus a plank.

The true nature of the loan transaction is, not that in it we get the use of capital and return it deteriorated, but that we get the capital itself, consume it, and *pay for* it by a new sum of value which somehow includes interest. If, however, we admit this, we are landed in the old problem once more—how do goods, when used as capital in production, increase in value to a sum greater than their own original value? and the Use theory ends in raising all the difficulties of the Productivity theories.

We have seen that the previous theories were founded on some positive work supposed to be done by capital. The *Abstinence theory*, on the other hand, is founded on the negative part played by the capitalist. Wealth once produced can be used either in immediate consumption—that is, for the purposes to which, in the last resort, all wealth is intended; or it can be used as capital—that is, to produce more wealth, and so increase the possibilities of future consumption. The owner of wealth who devotes it to this latter purpose deserves a compensation for his abstinence from using it in the former, and interest is this compensation. It must be carefully noted that the abstinence here spoken of is not abstinence from personal employment of capital in production—that would simply throw us back on the previous question, viz., how the owner could make interest (as distinct from wage) by the use of his capital—but abstinence from immediate consumption in the many forms of personal enjoyment or gratification.

At the back of this theory of interest is that theory of value which makes it depend upon costs of production. Senior, the first and principal apostle of the Abstinence theory, saw very clearly that the inclusion of interest or profit among costs was an abuse of language. The word "Cost" implies sacrifice, not surplus. But in production, as it seemed to him, there was another sacrifice besides the prominent one of labor, that of abstinence, and interest in his view was the compensation for this sacrifice.

But to account for the origin of *capital* by abstinence from consumptive use is one thing; to account for *interest* is another. In all production labor sacrifices life, and capital sacrifices immediate enjoyment. It seems natural to say that one part of the product pays wage and another pays interest, as compensation for the respective sacrifices. But labor is not paid because it makes a sacrifice, but because it makes products which obtain value from human wants; and capital does not deserve to be paid because it makes sacrifices—which is a matter of no concern to anyone but the capitalist—but because of some useful effect produced by its co-operation. Thus we come back to the old question: What service does capital render that the abstinence which preserves and accumulates it should get a perpetual payment? And if, as we saw, productivity cannot account for interest, no more can abstinence.

Now if, when the onus of justifying its existence is thrown upon capital, economic theory can only account for this income without risk and without work by pointing to the "productive power" of capital, or to the "sacrifice of the capitalist," it is easy to see how another theory should make its appearance, asserting that interest is nothing else than a forced contribution from helpless or ignorant people; a tribute, not a tax. Rodbertus' picture of the working man as the lineal descendant of the slave—"hunger a good substitute for the lash"; Lassalle's mockery of the Rothschilds as the chief "abstainers" in Europe; Marx's bitter dialectic on the degradation of labor, are all based on generous sympathy with the helpless condition of the working classes under capitalist industry, and many shut their eyes to the weakness of Socialist economics in view of the strength of Socialist ethics.

The *Exploitation theory* then makes interest a concealed contribution; not a contribution, however, from the consumers, but from the workers. Interest is not a pure surplus obtained by combination of capitalists. It does represent a sacrifice made in production, but not a sacrifice of the capitalists. It is the unpaid sacrifice of labor. It has its origin in the fact that labor can create more than its own value. A laborer allowed free access to land, as in a new country, can produce enough to support himself and the average family, and have besides a surplus over. Translate the free laborer into a wage earner under capitalism, pay him the wage which is just sufficient to support himself and his family, and here also it is the case that he can produce more than his wage. Suppose the laborer to create the value of his wage, in six hours' work, then, if the capitalist can get the worker to work longer than six hours for the same wage, he may pocket the extra value in the name of profit or interest. Here the modern conditions of industry favor the capitalist. The working day of ten to twelve hours is a sort of divine institution to the ignorant laborer. As the product does not pass into his own hand, he has no means of knowing what the real value of his day's work is. The only lower limit to his wage is that sum which will just keep himself and his family alive, although, practically, there is a lower limit when the wife and children become the breadwinners and the capitalist gets the labor of five for the wage of one. On the other hand, the increase of wealth over population gradually displaces labor, and allows the same amount of work to be done by fewer hands; this brings into existence a "reserve" to the industrial army, always competing with those left in work, and forcing down wages. Thus the worker, unprotected, gets simply the reproduced value of a portion of his labor; the rest goes to capital, and is falsely, if conscientiously, ascribed to the efficiency of capital.

III

The Agio and Impatience Theories of Interest.—The discussion in the preceding section has at several points suggested that the source of interest may be something very different from what is emphasized in the Productivity Theory or in the Use Theory. It is especially significant that the emergence of the phenomenon of interest seems to depend on the intervention of a certain interval of time between borrowing and paying. With this fact in mind Dr. von Böhm-Bawerk has maintained that the loan is in reality an exchange of present goods against future goods.

> Present goods invariably possess a greater value than future goods of the same number and kind, and therefore a definite sum of present goods can, as a rule, only be purchased by a larger sum of future goods. Present goods possess an agio in future goods. *This agio is interest.* It is not a separate equivalent for a separate and durable use of the loaned goods, for that is inconceivable; it is a part equivalent of the loaned sum, kept separate for practical reasons. The replacement of the capital + the interest constitutes the full equivalent.[1]

Böhm-Bawerk explains that the universal preference for present goods as contrasted with future goods is due to the following circumstances: (1) Future goods are perceived with greater difficulty and furnish less compelling motives for action than goods which are immediately at hand; (2) present goods are relatively scarcer than future goods; (3) present goods have a "technical superiority" over future goods in the productive process. This is due to the fact that the longer processes of production characteristically give a greater return from a given combination of labor and capital. Hence present goods are superior in industry and easily command a premium.

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[1] E. von Böhm-Bawerk, *Capital and Interest* (Smart's translation), p. 259.

Dr. Böhm-Bawerk's theory of Interest, then, is an expansion of an idea thrown out by Jevons but not applied. "The single and all-important function of capital," said Jevons, "is to enable the laborer to await the result of any long-lasting work—to put an interval between the beginning and the end of an enterprise." Capital, in other words, provides an indispensable condition of *fruitful* labor in affording the laborer time to employ lengthy methods of production.[1]

Professor Fisher, while accepting the Agio Theory in the main, has modified Böhm-Bawerk's explanation by omitting the concept of "technical superiority," which he believes not to be present, from the list of causes of the preference for present goods, and by further developing the psychological effect of the individual's income-stream.[2]

The essence of interest is impatience, the desire to obtain gratifications earlier than we can get them, the preference for present over future goods. It is a fundamental attribute of human nature; and as long as it exists, so long will there be a rate of interest.

Interest is, as it were, human impatience crystallized into a market rate. The market rate of interest is formed out of the various degrees or rates of impatience in the minds of different people. The rate of impatience in any individual's mind is his preference for an additional dollar, or one dollar's worth of goods, available today, over an additional dollar, or dollar's worth of goods, available a year from today. In other words, it is the excess of the marginal desirability of today's goods over the marginal desirability of next year's goods viewed from today's standpoint. It can be expressed in numbers as the premium that a man is willing to pay for this year's over next year's goods. If, for instance, in order to get $1 today he is willing to promise to pay $1.05 next year, then his rate or degree of impatience is said to be five per cent. The present $1 is worth to him so much that in order to get it he is willing to pay for it five per cent more than $1 in the future.[3]

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[1] Smart, *op. cit.*, p. xx.

[2] "A *flow of services* through a *period* of time is called *income*." Irving Fisher, *The Nature of Capital and Income*, p. 52. The Macmillan Co., 1906.

[3] Irving Fisher, *Elementary Principles of Economics*, pp. 371–72. The Macmillan Co., 1912.

The degree of impatience depends, in the first place, upon the personal characteristics of the individual; upon his foresight, self-control, habit, expectation of life, and love of posterity. In the second place it depends upon his

whole future stream of satisfactions, i.e., what we call his final enjoyable income. It will depend on three chief characteristics of that income: first, as just said, it will depend on its *distribution in time*, i.e., the relative abundance of his immediate as compared with his remote satisfactions; secondly, on the *amount* of the income, i.e., whether his satisfactions are, as a whole, scant or abundant; thirdly, on the *uncertainties* of the income, i.e., to what extent his satisfactions throughout future years are subject to chance, that is, may turn out to be greater or less than he first expected.[1]

Obviously the degree of preference will vary from individual to individual. Hence it is necessary to show how these many divergent rates of preference bring about a current interest rate. If we assume a perfect loan- and investment-market in which all risk, both in respect to the certainty of the expected income-streams of the various individuals, and in respect to the certainty of repayment of loans, is eliminated, the rates become equalized in the following manner:

If any particular individual has a rate of impatience above the market rate, he will sell some of his surplus future income to obtain (i.e., "borrow") an addition to his present meager income. This will have the effect of decreasing the desirability of his present income and increasing the desirability of the remaining future income. The process will continue until the rate of impatience of this individual is equal to the rate of interest. In other words, a person whose impatience rate exceeds the current rate of interest will borrow up to the point at which the two rates will be equal. Reversely, a man who, with a given income-stream, has a rate of impatience below the market rate, will sell (i.e., "lend") some of his abundant present income to eke out the future, the effect being to increase his rate of impatience until it also harmonizes with the rate of interest.[2]

It should be noted [however] that borrowing and lending are not the only ways in which one's income-stream may be modified. The same result may be accomplished simply by buying and selling property; for, since property rights are merely rights to particular income-streams, their exchange substitutes one such stream for another of equal value but differing in distribution in time, or certainty.[3]

We have seen that from the standpoint of the individual, when a rate of interest is given, he will adjust his rate of impatience to correspond with that rate of interest.

[1] Fisher, *Elementary Principles of Economics*, p. 379.

[2] *Ibid.*, p. 390.

[3] *Ibid.*, p. 394.

For him the rate of interest is a relatively fixed fact, since his own rate of impatience and resulting action can affect it only infinitesimally. All he can do is to adjust his rate of impatience to the rate of interest as he finds it. For society as a whole, however, these rates of impatience determine the rate of interest.[1]

Thus the rate of interest is the common market rate of impatience for income, as determined by the supply and demand of present and future income. Those who are very impatient strive to acquire more present income at the cost of future income, and tend to raise the rate of interest. These are the borrowers, the spenders, the buyers of goods which afford immediate gratification, the sellers of property yielding remote income, such as bonds and stocks. On the other hand, those who—being relatively patient—strive to acquire more future income at the cost of present income, tend to lower the rate of interest. These are the lenders, the savers, the investors.[2]

218. INTEREST RATES[3]

The published rates on money loaned on the New York market include *two* sets of quotations under the head "Call Loans," namely, call loans at the stock exchange and at banks and trust companies; *seven* under the head "Time Loans," namely, 30-, 60-, and 90-day, and 4-, 5-, 6-, and 7-month; and *three* under the head "Commercial Paper," namely, double name, choice 60- to 90-days, and two varieties of single name, prime 4- to 6-months, and good 4- to 6-months. In the weekly summaries contained in the *Commercial and Financial Chronicle* the minimum and maximum quotations for each class of loans are given, and, in the case of call loans at the stock exchange, the weekly average in addition. A comparison of these quotations reveals some interesting facts.

The call-loan rate at the stock exchange differs from that charged at the same time at banks and trust companies, both in magnitude and range. During the last eleven years its minimum has ordinarily been below that at banks and trust companies by amounts varying from $\frac{1}{8}$ per cent to 6 per cent, but most frequently by $\frac{1}{2}$ per cent. During 72 weeks of the period the minimum quotations at both places were identical. The average rate at the stock exchange during the same period was above the minimum at banks and trust companies by amounts varying from $\frac{1}{8}$ per cent to 34 per cent but most frequently by 1 per cent. These two quotations were identical during 138 of the 572 weeks under investigation. The range of rates at the stock exchange is much greater than at banks and trust companies, being most frequently between 1 per cent and 2½ per cent, while at banks and trust companies it was zero during 339 of the 572 weeks of the period, and less than 1 per cent during 470 weeks. In spite of these differences, however, the fluctuations of the rates at both places are in general the same, those at banks and trust companies changing less frequently and within a narrower range, but nevertheless following faithfully all the more important movements of the stock-exchange rate.

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[1] *Ibid.*, p. 398.

[2] *Ibid.*, p. 399.

[3] Adapted from W. A. Scott, "Rates on the New York Money Market 1896–1906," in *The Journal of Political Economy*, XVI, 273–98 (May, 1908).

The five varieties of time loans quoted regularly[1] also often differ from each other in magnitude and range. A comparison of the minimum quotations for the last eleven years reveals the general rule that the rate tends to rise as the length of the loan increases, but to this rule there are many exceptions. For example, in 126 weeks of the period the minimum rates were identical for all classes of time loans. The 90-day and 60-day minimum rates were identical in 308 weeks, the 4-months and 90-day in 320 weeks, the 5-months and 4-months in 374 weeks, the 6-months and 5-months in 501 weeks.

The difference between these quotations rarely exceeds ½ per cent, and the general rule seems to be that the influence of time in raising the rate grows less as the length of the loan increases. For example, there is apt to be a greater difference between the quotations of 60- and 90-day paper than between 90-day and 4-months. Likewise, there is a greater difference between 90-day and 4-months than between 4-months and 5-months paper.

The range of time loans is much less than that of call loans, being rarely above ½ per cent in a given week, and on all classes being zero during the great majority of the 572 weeks investigated. The tendency for the rate to vary during the week grows stronger as the period of the loan increases. In the case of 60-day loans, for example, there were variations in only 162 of the 572 weeks, while in that of 90-day loans there were variations in 190 weeks, and in that of 4-months loans, in 238 weeks.

During the greater part of the last eleven years the rates on all classes of time loans have averaged higher than those on call loans.

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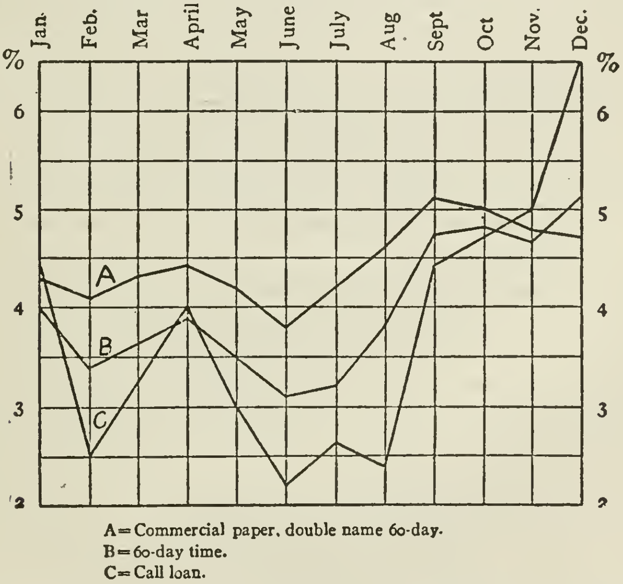
[1] Sixty- and 90-day and 4-, 5-, and 6-months. Thirty-day and 7-months paper is frequently, but not always quoted, and it was therefore omitted from the calculation.

This was true of the annual averages of these rates for seven of the eleven years and of the monthly averages for 86 of the 132 months of the period. The exceptions to this rule, however, are important, and to their significance I shall refer a little later.

A comparison of the quotations on commercial paper reveals the same kind of differences that are noted in the case of call and time loans. The minimum rate on double-name paper is usually below that on single-name, but during 254 of the 572 weeks of the period it was identical with that on prime single-name paper. The difference, when one exists, is usually ¼ per cent. The range for single-name paper is usually greater than for double-name and the fluctuations are more frequent. As compared with the rates on time loans, running for the same period, that on commercial paper, as a rule, averages higher. The exceptions to this rule correspond in time to those mentioned above in which the call-loan rate averaged above that on 60-day time.

Monthly Averages of Typical Rates for the Period 1896–1906



A study of the monthly, as distinguished from the annual, averages clearly reveals certain seasonal fluctuations. These are indicated on the above chart, which represents the rates for each month averaged for the entire eleven years.

It will be observed that for all the rates these eleven-year averages indicate a decline at the beginning of the year, a rise in the spring, another decline in the early summer and a heavy rise in the late summer and early fall. With the exception of the call rate, which rose steadily from September to the end of the year, they also indicate a reaction from the fall rise in October and November, followed by a sharp rise in December, in the case of the time rates, and by a still further decline in the case of the commercial-paper rates.

A more detailed study of each year confirms the regularity of these seasonal fluctuations. For example, with the exception of 1899,[1] all the rate averages fell in January and February of each year. To the rule of a spring rise there were exceptions only in 1896 and 1904. The fall in rate averages in the early summer occurred regularly each year. As a rule, it continued through May and June, but in 1901 and 1902 the spring rise in all the rates continued into May, so that the June average alone showed a fall, and the same thing happened to the call and time rates in 1904 and to the commercial-paper rate in 1899. In 1903, in the case of all the rates, the fall continued through May only, the June average being higher, and in 1905 the same was true of the call and time rates.

Regarding the upward movement in the late summer and early fall the monthly averages indicate some irregularities. Ordinarily it began in July and continued through September. Sometimes, however, as in 1897, 1900, 1904, 1905, and 1906, the early summer decline continued into July, making the average for that month, in the case of some or all of the rates, lower than in June. In August the call and time rates (one or both) fell in 1899, 1901, 1902, 1903, 1904, and 1905. For all the rates the upward movement continued through October in 1900 and 1904, and to the end of the year in 1899 and 1905. The call and time rates continued to rise throughout October in 1896 and to the end of the year in 1904.

The movements of rates during the last quarter of the year do not exhibit the same degree of uniformity and regularity as in the other seasons. A reaction from the high rates of the autumn was the rule.[2] However, the averages of none of the rates fell in the last quarter of 1899 or of 1905, and neither the call- nor the time-rate averages fell in the last quarter of 1903 or of 1904. The average call rate also rose steadily from August to December of 1900. The time within the quarter at which this reaction takes place is not the same in the different years and varies considerably between the different rates in the same year. Most frequently it happened in October, but often in November.[1] In 1896 the averages of all the rates fell in November and December, the decline continuing through February of the following year. A rise in December occurred in the average of the call rate each year except 1896, and in that of the time rates each year except 1896 and 1903. The commercial-paper rate average rose in December only in the years 1890, 1902, 1904, and 1905.

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[1] In 1899 the call-rate average rose in January and fell in February, and the time and commercial-paper rate averages fell in January and rose in February.

[2] It occurred in eight of the eleven years in the call and time rates and in nine of the eleven years in the commercial-paper rate.

In the investigation of the causes of the fluctuations of rates, and the influence they exert upon each other, the average call-loan rate at the stock exchange, the minimum rate on 60-day time loans, and that on double-name 60- to 90-day commercial paper have been selected as typical each of its class. A detailed comparison by means of charts indicates that the fluctuations of the other rates in each class are almost identical with these, and that the conclusions to be drawn from a study of these three will apply equally well to the others.

In all their principal and in most of their minor fluctuations these three rates move together. In degree of change the call-loan rate was decidedly the champion, the 60-day time rate, as a rule, occupying second, and the commercial-paper rate third place. The cases in which these statements do not hold true are decidedly exceptional. These facts point clearly to influences common to all the rates as the chief causes of their fluctuations.

The causes of the rate fluctuations which have been noted must be sought chiefly in the influences which have affected the relations between the supply of and the demand for loanable funds on the New York market. The best available key to these influences is the surplus reserves of the Associated Banks. They are the nearest approximate measure of the amount of the loan fund at any given time.

Both the total money holdings of the banks and the surplus reserves performed four major and several minor fluctuations each year during the period under discussion. They regularly decreased from the beginning of February to the end of the first week in April; increased from that date to the end of July; decreased again to the end of the first week in November, and then increased to the end of January. Among the minor movements the most important were: an increase in the month of October; a fall in December; and downward movements during the early parts of the summer months. These latter were sometimes great enough approximately to offset the effects of the normal summer rise, the line on the chart[1] during these years waving up and down without much if any tendency to rise. Many other fluctuations occurred, but they do not exhibit any marked degree of regularity.

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[1] The call-rate average fell in October in 1898, 1901, 1902, and 1906, and in November in 1896, 1897, and 1902; the time-rate averages fell in October in 1898, 1901, 1902, and 1906, and in November in 1896, 1897, and 1900; the commercial-paper rate average fell in October in 1897, 1901, 1903, and 1906, and in November in 1896, 1897, 1900, 1902, and 1904.

The causes of fluctuations in the total money holdings of the Associated Banks are the movements of currency to and from the interior, to and from local territory, the operations of our independent treasury system, and imports and exports of gold. In order approximately to determine the relative importance of these influences, the weekly net gains and losses to these banks from each of these movements were calculated, and their relative magnitudes compared. The results indicate that in their effect upon the reserves of the Associated Banks the interior currency movement was first in importance, the movement between the banks and their customers in New York City and its immediate vicinity second, that between the banks and subtreasury third, and that between the banks and foreign countries fourth. The degree of importance of each of these movements is approximately indicated by the figures 233, 153, 131, and 49, representing the number of weeks respectively each contributed most toward the change in the magnitude of the reserves. The pre-eminent importance of the internal currency movement is still further emphasized by the fact that this movement also occupied second place more frequently than any of the others. Of the 571 weeks covered by the investigation it occupied either first or second place during 420 weeks, the subtreasury movement during 298, the local movement during 297, and the external gold movement during 112.

The accompanying Table III[1] indicates the relative importance of each of these movements for each month in the year during the period under discussion. It shows that the internal currency movement occupied first place in relative importance in every month of the year except March, when the influence of the subtreasury was greatest; that the local movement was second in importance in every month except May, August, and November, when the subtreasury movement occupied that place. The external gold movement was least important of the four in every month except May, when the local movement occupied that place.

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[1] Omitted in this adaptation.—EDITORS.

In degree of importance the local and subtreasury movements do not greatly differ. During the first three years of the period the subtreasury movement was the greater of the two in magnitude, and since that time, every year without exception, the local movement has been greater.

It is quite impossible by statistical or other processes to segregate and measure the various elements which together constitute the demand for loans. Every branch of industry, doubtless, contributes its quota, but there is no way of determining accurately how large this quota is or precisely how it affects the open market rates here under consideration. In the case of one of these elements, however, namely, the stock-market demand, it is desirable that we should approximate a measurement as closely as possible, since public opinion and current discussion apparently agree in assigning it a very great, if not a dominating, influence on the New York market.

Unfortunately, in the reports of the Associated Banks, loans are not classified, and it is, therefore, impossible to compare changes in rates from week to week with changes in the magnitude of loans to stock exchange operators. We may, perhaps, arrive at similar results, however, by a round-about process.

The comptroller of the currency classifies the loans of the national banks of New York City for one date each year, and thus enables us to determine approximately what percentages of the total loans of these banks, on the average, are subject to stock-market conditions. We shall not do great violence to truth if we assume that these figures represent approximately the state of affairs for all the Associated Banks.

If these figures represent average conditions throughout the period the percentage of call loans on stock-exchange collateral to total loans is normally in excess of 40, that of time loans secured in the same way, in excess of 20, and that of the two classes of loans combined, in excess of 60. It is probably safe to say, therefore, that, on the demand side, at least one-half the loans of the New York City banks are normally subject to stock-market conditions.

We may not assume that whenever the movement up or down of the call-rate average corresponded in time with that of the volume of transactions on the stock exchange the latter was the cause of the former. In 46 of the 68 months in which this was true the fluctuations of the reserves would equally well have explained the movements of the call rate. The true interpretation of these statistics would seem rather to be that the demand for loans on the stock exchange at all times constitutes a large percentage[1] of the total demand, but that about half of the time its influence on rates is more than counterbalanced by other influences; that in about two-thirds of the instances in which the call rates move in the direction indicated by the stock market demand, the reserves have contributed to the movement in at least an equal degree; and that only occasionally, according to the above statistics in 22 of the 132 months, has this demand actually determined the direction of the rate movement.

In order to do complete justice to the influence of the New York Stock Exchange on rates, account must be taken of the intensity as well as of the magnitude of the demand for loans which it occasions. Many times during the last eleven years, when banks have been obliged to call their loans, the needs of stock brokers have been so pressing as to force rates to very great heights.[2] These occasions have usually, though not always, been marked by excessive activity on the exchange, but the magnitude of the change in rates in such cases was greatly in excess of what the sales would normally have produced. The initial cause of the change in rates in these cases has been quite as often off as on the stock exchange. For example, the call of loans in the latter part of October and the early part of November, 1896, was caused by a money stringency produced by the free-silver agitation just preceding the presidential election of that year. The initial movement toward high rates in December, 1905, and in January, April, September, and December, 1906, came from the supply rather than the demand side of the market. On the other hand, the initial cause of the rate movements in December, 1899, and May, 1901, was stock-market panics. In all these cases, however, the excessive height of the rates must be attributed to the high pressure to which stock-market operators were subjected.

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[1] It will not, of course, do to assume that all loans on stock-exchange collateral are made by operators on the stock exchange and that the funds thus borrowed are used in the purchase of stocks. In the light of the above statistics, however, it is probably safe to assume that a large percentage of such loans are so used.

[2] The call rate rose to 127 per cent on October 29, 1896; to 96 per cent on November 2, 1896; to 186 per cent on December 18, 1899; to 75 per cent on May 9, 1901; to 125 per cent on December 28, 1905; in 1906 to 60 per cent on January 2, to 30 per cent on April 5 and 6; to 40 per cent on September 5, and to 45 per cent on December 31.

The element of risk is always operative on the New York market and must be considered in the explanation of rates. It is doubtless mainly responsible for the difference between the rates on 60-day, double-name, choice commercial paper, and those on 60-day loans secured by stock-exchange collateral; also for the difference in the rates on double-name and single-name commercial paper; but at times it is also a factor in individual and general rate movements. Such events as proposed and actual changes in the standard of value or other elements of the currency, special financial operations of the government, wars and rumors of wars, presidential elections, etc., change the scope and magnitude of its influence and cause fluctuations in rates not warranted by the condition of the reserves or other influences. The success of the government loan for the replenishment of the gold reserve, in February, 1896, showed itself in a lowering of the rates in the call and time markets at a time when the surplus reserves were rapidly falling. The presidential election in November of the same year, in which the question of the standard of value was at stake, raised rates to a great height in the week preceding the election and lowered them greatly in the week following, quite regardless of the course of the surplus reserves, which in both weeks would have warranted movements exactly contrary to those which actually took place. The presidential election of 1900 also affected the money market. The rate on call loans advanced to 25 per cent just before the election, and after the result was known the offerings of hoarded money were so great as to lower considerably the average rate for commercial paper for the week ending November 9, notwithstanding the fact that the average of the surplus reserves for that week was considerably lower than in the one preceding. During the weeks ending April 16 and 23,[1] 1898, the fluctuations of rates were due to the excitement and apprehension caused by the preceding events and the outbreak of the Spanish War. Whenever stock-market values are fluctuating widely, banks not only demand larger margins and are more

[1] The week ending April 16 the average for call loans rose from 1⅜ to 2¾ per cent in spite of an increase in the surplus reserves, and the following week both the time and commercial-paper rates rose, even though the surplus reserves advanced to a considerably higher figure.

discriminating in the selection of collateral, but they often also raise rates on this class of loans. Every stock-market flurry of the last decade furnishes examples.

Besides the various influences comprehended under the terms supply, demand, and risk, it is possible that at times a monopolistic element has entered the market. The great height attained by the call rate in periods of extreme stringency seems to point to the presence of this element. When the majority of the banks have practically withdrawn from the market, it is possible for the few individuals, corporations, and financial institutions still remaining to resort to a close approximation to holdup processes, thus forcing the rate to unreasonable heights.

A further continuation of the analysis of the causes of rate movements would unduly extend this article. What has already been presented seems adequate support for the following statements:

1. Fluctuations of rates on the New York market are wide and frequent, and tend to become more and more severe.

2. In a large measure they are due to currency movements, that to and from the interior being especially important.

3. Some of these currency movements occur with a considerable degree of regularity and are, therefore, capable of being foreseen and provided for; others, and these are frequently very important, are very irregular and uncertain and therefore cannot be foreseen and provided for.

4. The influences to which rates are subject are varied and numerous. No single one can be regarded as dominant in the sense that at all times and normally it overshadows all the others.

5. Many of these influences are national and even international in scope, and therefore justify the application to the New York market of the adjective national, and warn against an apparently widespread belief that its ups and downs do not concern the entire country.

6. The currency situation revealed by the movements outlined and illustrated in the preceding pages calls for serious consideration from Congress and amply justifies the persistent demand for thoroughgoing reform.

219. CONDITIONS IN THE MONEY MARKET

The money situation continues remarkably easy in view of the comparatively limited reserves held by the banks.[1] This condition may, of course, be ascribed to the absence of demand by new enterprises and to the general slowing down of business resulting from the radical reductions that are contemplated in the new tariff schedules. Importers are requiring smaller accommodation, there is virtually no Stock Exchange speculation of any kind that requires financing, and general business seems to be gradually approaching a position where it is concerned merely with the day to day requirements of consumers.

Notwithstanding that $4,000,000 in gold for export must be taken into consideration in the money movement of the week, the bank statement to be issued after the close of business to-day promises to be a fairly favorable one. In the direct movement from the interior a net gain of $9,062,000 was shown by the New York banks. But from this must be deducted the $4,000,000 and a net loss of $387,000 on Sub-Treasury business, which brings the net gain down to $4,675,000.

A rather significant indication of the real condition of the money market at present[2] is the fact that sixty-day funds are quoted at 3½ @ 3¾ per cent, while six months are 4¾ per cent, and still higher figures are quoted for more distant maturities. In other words, money in New York is apt to continue easy until crop requirements become insistent. Then if there should be any improvement in trade following the definite promulgation of the tariff and should Stock Exchange speculation assume even normal proportions, bankers at New York expect that a period of distinct stringency will prevail and they are governing their transactions and credit accordingly. An equally significant feature in the last few days has been the sale in this market of quite large amounts of sterling finance bills. This is a form of foreign borrowing and means that foreign funds are being loaned here on long term commitments. This, of course, will be a counteractive influence of the recent exportation of gold.

Preliminary estimates in regard to the movements of currency this week suggest a gain in cash by the banks of about $5,300,000. They received from the interior $19,085,000 and sent to the interior

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[1] From *The Journal of Commerce and Commercial Bulletin*, May 17, 1913.

[2] *Ibid.*, May 24, 1013.

$8,293,000, including $4,858,000 national bank notes sent to Washington for redemption. The gain from the interior was $10,792,000. Gold exports amounted to $2,000,000 in bars to Paris. The ordinary disbursements by the Sub-Treasury aggregated $11,343,000. The payments by the banks to the Sub-Treasury were $14,779,000, showing a loss on Sub-Treasury operations proper of $3,436,000.

Offerings of money on call showed an increase yesterday, which was reflected in the fact that renewals were made at 2¾ per cent, as against 2⅞ per cent on the previous day. The extreme quotations were 2½ and 3 per cent. The opening and closing figure was 2¾ per cent.

Time money, however, was firmer for the long periods. All the banks and trust companies were insisting on 4½ per cent for five months and 4¾ per cent for six months.

Commercial paper presented no new feature. Transactions were again on a small scale at rates previously current.

At Boston there was considerable marking down of call money rates from 3½ to 3 per cent.

At Chicago easier money rates are regarded as temporary. Trust companies continue to loan on September and October maturities. Long-time loans are firm at 5½ to 6 per cent.

Following are the quotations covering call and time loans and commercial paper for the periods named:

	Yesterday	Last Week	Last Year
Call money—			
Renewals	2¾	2¾	2¾
Range	2½@3	2½@2⅞	2¾@3
Time money—			
Sixty days	3½@3¾	4	3
Ninety days	3¾@4	4 @4¼	3 @3¼
Four months	3¾@4	4 @4¼	3¼
Five months	4¼@4½	4¼@4½	3¼@3½
Six months	4½@4¾	4½@4¾	3½
Commercial paper—			
Choice 6 months names	5¼@5½	5¼@5½	3¾@4

220. DIFFERENCES IN RATES OF INTEREST ON PUBLIC LOANS

a) DIFFERENT AVERAGE RATES OF INTEREST ON INDEBTEDNESS OF STATES, COUNTIES, AND MINOR CIVIL DIVISIONS BY GROUPS OF STATES, 1902[1]

	Per cent
Me., N.H., Vt., Mass., R.I., Conn.	3.8
N.Y., N.J., Pa.	4.0
Del., Ind., Va., W. Va.	4.6
N.C., S.C., Ga., Fla.	5.8
Ohio, Ind., Ill., Wis., Mich.	4.7
Minn., Ia., Mo., N.D., S.D., Neb., Kan.	5.0
Ky., Tenn., Ala., Miss.	5.1
La., Ark., I.T., Okla., Tex.	4.9
Mont., Idaho, Wyo., Colo., N.M.	5.4
Ariz., Utah, Nev.	6.1
Wash., Ore., Cal.	5.0

b) DIFFERENT RATES OF INTEREST ON DEBT OF VARIOUS COUNTRIES[2]

	Per cent
Argentina	4–6
Austria-Hungary	3–5
Brazil	4–5
Canada	2½–4
China	4–5
Ecuador	4–10
France	2¼–3
German Empire	3–4
Italy	3–5
Japan	4–5
Mexico	3–5
Netherlands	2½–3
Norway	3–3½
Paraguay	3–7
Russia	3–6
Siam	4½
United Kingdom	2½–2¾
United States	2 –4

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[1] Special Report of the United States Census Office, *Wealth, Debt, and Taxation* (1907), p. 143.

[2] *Statistical Abstract of the United States*, 1912, pp. 804–805.

221. TABLE OF BOND VALUES[1]

COMPUTED FOR SECURITIES BEARING INTEREST AT 5 PER CENT ON PAR VALUE

Years before Maturity	Equivalent Rate of Return												
	4½%	4⅝%	4¾%	4⅞%	5%	5⅛%	5¼%	5⅜%	5½%	5⅝%	5¾%	5⅞%	6%
1	100.48	100.36	100.24	100.12	100.00	99.88	99.76	99.64	99.52	99.40	99.28	99.16	99.04
2	100.95	100.71	100.47	100.24	100.00	99.76	99.53	99.30	99.07	98.83	98.60	98.37	98.14
3	101.39	101.04	100.69	100.35	100.00	99.66	99.31	98.97	98.63	98.30	97.96	97.62	97.29
4	101.81	101.36	100.90	100.45	100.00	99.55	99.11	98.67	98.23	97.79	97.35	96.92	96.49
5	102.22	101.66	101.10	100.55	100.00	99.45	98.91	98.37	97.84	97.31	96.78	96.26	95.73
6	102.60	101.95	101.29	100.64	100.00	99.36	98.73	98.10	97.47	96.86	96.24	95.63	95.02
7	102.97	102.22	101.47	100.73	100.00	99.27	98.55	97.84	97.13	96.43	95.73	95.04	94.35
8	103.33	102.48	101.65	100.82	100.00	99.19	98.38	97.59	96.80	96.02	95.24	94.48	93.72
9	103.67	102.74	101.81	100.90	100.00	99.11	98.23	97.35	96.49	95.63	94.79	93.95	93.12
10	103.99	102.98	101.97	100.98	100.00	99.03	98.07	97.13	96.19	95.27	94.36	93.45	92.56
11	104.30	103.21	102.12	101.06	100.00	98.96	97.93	96.92	95.91	94.93	93.95	92.98	92.03
12	104.60	103.43	102.27	101.13	100.00	98.89	97.79	96.72	95.65	94.60	93.56	92.54	91.53
13	104.88	103.63	102.40	101.19	100.00	98.82	97.67	96.52	95.40	94.29	93.20	92.12	91.06
14	105.15	103.83	102.54	101.26	100.00	98.76	97.54	96.34	95.16	94.00	92.85	91.73	90.62
15	105.41	104.03	102.66	101.32	100.00	98.70	97.43	96.17	94.94	93.72	92.53	91.36	90.20
16	105.66	104.21	102.78	101.38	100.00	98.65	97.32	96.01	94.72	93.46	92.22	91.00	89.81
17	105.90	104.38	102.89	101.43	100.00	98.59	97.21	95.86	94.52	93.22	91.93	90.67	89.43
18	106.12	104.55	103.00	101.49	100.00	98.54	97.11	95.71	94.33	92.98	91.66	90.36	89.08
19	106.34	104.71	103.11	101.54	100.00	98.49	97.02	95.57	94.15	92.76	91.40	90.06	88.75
20	106.55	104.86	103.20	101.59	100.00	98.45	96.93	95.44	93.98	92.55	91.15	89.78	88.44
25	107.46	105.52	103.64	101.80	100.00	98.25	96.54	94.88	93.25	91.66	90.12	88.61	87.14
30	108.19	106.05	103.98	101.96	100.00	98.10	96.24	94.44	92.69	90.99	89.34	87.73	86.16
35	108.77	106.47	104.25	102.09	100.00	97.98	96.01	94.11	92.27	90.48	88.75	87.07	85.44
40	109.24	106.81	104.46	102.19	100.00	97.88	95.84	93.86	91.95	90.10	88.31	86.58	84.90
45	109.61	107.07	104.63	102.27	100.00	97.81	95.70	93.66	91.70	89.80	87.97	86.21	84.50
50	109.91	107.28	104.76	102.33	100.00	97.76	95.59	93.52	91.51	89.58	87.72	85.93	84.20

The figures in this table show, as a percentage of par, the present value of any 5 per cent bond, according to (1) the length of time to elapse before repayment of the principal, and (2) the equivalent rate of net income which the investment is to yield.

For example, a man wishes to buy in July, 1913, a $1,000 5 per cent bond maturing in July, 1932, and wishes to derive from it a net income equivalent to 5¼ per cent, allowing for the fact that he is to receive at the maturity of the bond the full par value, which is more than he will now pay for it. In the column headed 5¼ per cent, the figure showing the value 19 years before maturity is 97.02. The proper price to pay for the $1,000 bond is therefore $970.20.

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[1] Compiled from more elaborate tables published for the use of bankers and investors.

222. THE RELATION OF INTEREST-RATES TO RISING OR FALLING PRICES[1]

To what extent is appreciation of money balanced by a lower rate of interest, or depreciation of money by higher interest? Only to a small degree. So largely is the dollar looked upon as a settled and unchangeable standard, so little is its variability in purchasing power practically considered, despite plentiful evidence of this variability, that the adjustment of interest rates to the changing value of money seems almost negligible. The difficulty is the greater, because, even when all these possibilities are borne in mind, we cannot be absolutely certain how or to what extent money will change in value over either a long or a short future period. We may expect, for instance, a continued depreciation, but we cannot be sure of it or of its extent and continuance.

In *The Rate of Interest*, Professor Fisher has set forth numerous statistical data which seem to show, in the aggregate, some tendency toward adjustment of interest to price changes. If money is depreciating there is some tendency for interest to rise, and if it is appreciating, for it to fall. But this rule, if true for a majority of cases, is also subject to numerous exceptions. And even when there is adjustment, it is exceedingly slight. The following figures (from Irving Fisher's *The Rate of Interest*, brought down through 1910 by compilations from the *Financial Review* and the *Economist*), giving interest rates, appreciation and depreciation of money, and virtual interest (i.e., interest realized in actual purchasing power), show to how small

New York Rates of Interest in Relation to Rising and Falling Prices Taken from Prime Two-Name 60-Day and 90-Day Paper

Years	Per Cent Interest	Per Cent Appreciation (+) or Depreciation (−) of Money	Per Cent Virtual Interest
1875–1879	5.1	+7.9	+13.0
1880–1884	5.4	+0.6	+ 6.0
1885–1891	5.1	−0.2	+ 4.9
1892–1897	4.6	+5.6	+10.2
1898–1906	4.6	−3.5	+ 1.1
1907–1910	4.9	−0.5	+ 4.4
1875–1896	5.1	+2.6	+ 7.7
1897–1910	4.6	−2.4	+ 2.2

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[1] From Harry G. Brown, "Rising Prices and Investments," in *How to Invest When Prices are Rising*, pp. 41–43. G. Lynn Sumner & Co., 1912.

BANK OF ENGLAND RATES OF INTEREST IN RELATION TO RISING AND FALLING PRICES

Years	Per Cent Interest	Per Cent Appreciation (+) or Depreciation (−) of Money	Per Cent Virtual Interest
1874–1879	3.2	+4.3	+7.5
1880–1887	3.3	+3.8	+7.1
1888–1890	3.8	−1.4	+2.4
1891–1896	2.5	+3.4	+5.9
1897–1900	3.2	−6.6	−3.4
1901–1906	3.6	−1.5	+2.1
1907–1910	3.7	−0.9	+2.8
1897–1910	3.5	−1.6	+1.9

a degree money rates of interest change and how great, therefore, are the differences realized in virtual interest when prices are rising and when they are falling.

223. THE THEORY OF BOND VALUES DURING A RISING-PRICE ERA[1]

A bond has been well defined as "a promise to pay *a definite sum* of money at a definite future date, with *interest at a fixed rate* payable at stated intervals in the meantime." The italics indicate the significant things for our immediate consideration. What we seek to know is the effect of rising prices upon fixed sums of money due in the future. An illustration will show this effect most clearly.

Suppose that an investor pays par value for a $1,000 bond bearing 4 per cent interest. If during the following year prices rise 2½ per cent (about the actual compounding annual average rise for the past 15 years) the investor must have $1,025 at the end of the year to have the same purchasing power which his $1,000 represented at the beginning of the year. But, supposing that, at the end of the year, he can still get $1,000 for his bond, he will then have $1,040, principal and interest. This is $40 more money, *but only $15 more purchasing power than he had at the beginning of the year.* And this $15 will not buy so much as $15 would have bought then! Furthermore he probably could not get the full $1,000 for his bond. Allowing, then, for his loss in purchasing power as to both principal and interest, *he has received less than* 1½ *per cent, instead of* 4 *per cent, on his invested capital.*

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[1] From Walter E. Clark, "Bonds as an Investment When Prices are Rising," in *How to Invest When Prices are Rising*, pp. 60–62. G. Lynn Sumner & Co., 1912.

This simple illustration tells the whole story. The principle involved is that a general rise in prices lowers the *real* income of those whose income in dollars and cents is fixed. It must be emphasized that this principle applies as much to the whole sum paid in the redemption of a bond, at maturity, as it does to the periodic sums paid in interest. Both kinds of payments are fixed sums and therefore have decreasing purchasing powers as the years of a rising-price era pass.

XVIII. PROFITS

224. WALKER'S THEORY OF PROFITS[1]

I shall now undertake to show that profits, the remuneration of the entrepreneur or employer, partake largely of the nature of rent, being a species of the same genus. So far as this is the case, profits do not form a part of the price of the products of industry, and do not cause any diminution of the wages of labor.

The successful conduct of business, under free and active competition, is due to exceptional abilities, or to exceptional opportunities. Whether due to exceptional abilities or to exceptional opportunities, my proposition could be equally well established, just as it makes no difference in the theory of rent whether a piece of land owes its superior advantages for the purposes of cultivation to higher natural fertility, or to closer proximity to the market to be supplied. Yet it can not be a matter of indifference to social philosophy, whether the power to command profits be due to exceptional abilities or to exceptional opportunities; and I may, therefore, be pardoned for pausing to point out that the former are far more efficient than the latter, in securing profits.

To justify this assertion it will be enough to refer to the well-known fact that a great majority of all business houses which have achieved notable success have been founded by men who owed almost nothing to opportunity. On the other hand, nothing is more familiar than the spectacle of great houses, deeply founded, which have enjoyed high prestige, wide connections and large accumulated capital, dwindling away little by little, if not brought abruptly to their downfall, under the successors of the original founder, simply because the management which had been strong, and brave, and wise, became commonplace, purposeless, timid, and weak. All this is so familiar that I do not fear that any American, at least, will question the assertion that exceptional abilities have far more to do with the successful conduct of business, than exceptional opportunities.

Inasmuch as it would make no difference whether profits were due to exceptional abilities or to exceptional opportunities, while the former are, in fact, much the more important factor in the successful conduct of business, I shall, hereafter, for convenience and simplicity, speak of profits as due to exceptional abilities, just as in discussing the question of the use of the land, we speak of rent as due to differences in fertility, assuming, for convenience of illustration, all the fields under view to be in equal proximity to the market.

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[1] From Francis A. Walker, *Political Economy* (advanced course), pp. 236–41 Henry Holt & Co., 1888.

If (1) the number of men of exceptional abilities were sufficient or more than sufficient to do all the business that required to be done, of all sorts and in all places; if (2) these men, however much surpassing all other members of the industrial society, were among themselves equal in all respects which concern the conduct of business; and if (3) this class, so constituted and so endowed, were distinguished from all not of their class so clearly and conspicuously that no one having these exceptional abilities should fail to be recognized, and no one lacking such abilities in the full measure should esteem himself capable of conducting business, or be so esteemed, for the purpose of obtaining credit, we should have a situation closely analogous to that which [would be presented by] the case of a community near which was found an amount of good land, of uniform quality, adequate, or more than adequate, to raise all produce required for the support of the community.

The result would be, either [1] that this class would, by forming a combination and scrupulously adhering to its terms and its spirit, create and maintain a monopoly price for their services in conducting the business requiring to be done, which is so improbable as to be altogether out of our contemplation, or [2] they would, by competing among themselves for the amount of business, bring down its rate to so low a point that the remuneration of each and every one of this class would be practically equal to what he would receive if employed by another. This, which we might call the "no-profits" stage of industrial society, corresponds closely to the "no-rent" stage in the cultivation of the soil. The persons remaining in the conduct of business would earn their necessary subsistence, but no more. Economically it would make no difference to them whether they did this as employers or employed.

In fact, however, the qualifications for the conduct of business are not equal throughout all of a sufficiently numerous class. On the contrary, the range of ability is almost world-wide. First, we have those rarely-gifted persons who, in common phrase, seem to turn every thing they touch into gold; whose commercial dealings have the air of magic; who have such insight as almost to seem to have foresight; who are so resolute and firm in temper that apprehension and alarms and repeated shocks of disaster never cause them to relax their hold or change their course; who have such command over men that all with whom they have to do acquire vigor from the contact and work for them as they would not, perhaps could not, work for others.

Next below, though far below, we have that much larger class of men of business, of a high order of talent, though without genius or any thing savoring of magic, whose unqualified success is easily comprehended, even if it can not be imitated: men of natural mastery, sagacious, prompt, and resolute.

Then we have the men who, on the whole, do well, or pretty well, in business: men who enjoy a harmonious union of all the qualities of the entrepreneur, though only in moderate degree, or in whom some defect, mental or moral, impairs a higher order of abilities; men who are never masters of their fortunes, are never beyond the imminence of disaster, and yet, by care and pains and diligence, win no small profits from their business, and, if frugality be added to their other virtues, accumulate in time large estates.

Lower down in the industrial order are a multitude of men who are found in the control of business enterprises for no good reason: men of checkered fortunes, sometimes doing well, but more often ill; some of them, perhaps, filling a place that would not otherwise be filled, but, more commonly in business because they have forced themselves into it under a mistaken idea of their own abilities, perhaps encouraged by the partiality of friends who have been willing to place in their hands the agencies of production, or intrust them with commercial or banking capital. The industrial careers of these men are not peculiarly happy, though the degree in which they suffer from the constant imminence of loss, perhaps of bankruptcy, is very much a matter of temperament. Some take it extremely hard, and when they fall make no effort to rise again; others are irrepressible as Harlequin, jumping up, alert as ever, after being apparently hanged, drawn, and quartered by the common executioner.

Now, in my view of the question of profits, we find, in the lower stratum of the industrial order thus rudely and hastily sketched, a "no-profits" class of employers. Notwithstanding all the magnificent premiums of business success, the men of real business power are not so many but that no small part of the posts of industry and trade are filled by men inadequately qualified, and who, consequently, have a very checkered career and realize for themselves, taking their whole lives together, a meager compensation, so meager that, for purposes of scientific reasoning, we may treat it as constituting no profits at all. Live they do, partly by legitimate toll upon the business that passes through their hands, partly at the cost of their creditors, with whom they make frequent compositions, partly at the expense of friends, or by the sacrifice of inherited means. This bare subsistence, obtained through so much of hard work, of anxiety, and often of humiliation, we regard as that minimum which, in economics, we can treat as *nil*. From this low point upwards, we measure profits.

If this view of the employing class be correctly taken, it appears that, under perfect competition, that is, where the conditions of a good market are supplied, manufacturing profits, for instance, are not obtained through any deduction from the wages of mechanical labor; and, secondly, manufacturing profits do not constitute a part of the price of manufactured goods. All profits are drawn from a body of wealth which is created[1] by the exceptional abilities (or opportunities) of those employers who receive profits, measured from the level of those employers who receive no profits, just as all rents are drawn from a body of wealth, which is created by the exceptional fertility (or facilities for transportation of produce) of the rent-lands, measured from the level of the no-rent lands.

The price of manufactured goods of any particular description is determined by the cost of production of that portion of the supply which is produced at the greatest disadvantage. If the demand for such goods is so great as to require a certain amount to be produced under the management and control of persons whose efficiency in organizing and supervising the forces of labor and capital is small, the cost of production of that portion of the stock will be large, and the price will be correspondingly high, yet, high as it is, it will not be high enough to yield to the employers of this grade any more than that scant and difficult subsistence which we have taken as the no-profits line.

The price at which these goods are to be sold, however, will determine the price of the whole supply, since, in any one market at any one time, there is but one price for different portions of the same commodity. Hence, whatever the cost of production of those portions of the supply which are produced by employers of a higher industrial grade, they will command the same price as those portions which are produced at the greatest disadvantage. The difference, so measured, will go as profits to each individual employer, according to his own success in production.

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[1] Professor Alfred Marshall says: "The earnings of management of a manufacturer represent the value of the addition which his work makes to the total produce of capital and industry."

Do profits, then, come out of wages? Not at all. The employers of the lowest industrial grade—the no-profits employers, as we have called them—must pay wages sufficient to hire laborers to work under their direction. These wages constitute an essential part of the cost, to the employer, of the production of the goods. The fact that these wages are so high is the reason why these employers are unable (their skill and power in organizing and energizing labor and capital being no greater than they are), to realize any profits for themselves.

The employers of the higher industrial grades will pay the same wages to their laborers. Why, in equity or in economics, should a laborer who works for a strong, prudent and skillful master, receive higher wages than one whose fortune it is to work for a vacillating, weak or reckless employer? The one laborer is as efficient as the other, and works as hard. The difference in production, which, in the one case allows rent to be paid, and in the other enables this employer to secure a profit, is due to no superiority in the quality of the labor or the capital employed, over that of the labor and the capital employed where no rents or no profits are realized. In the one case it is due to the superior fertility of the land, or its greater facilities for the transportation of produce; in the other, to the superior abilities or opportunities of him who conducts industry.

In the latter case, the employer, paying wages at the same rate to his laborers, and interest, at the same rate, to the capitalist, for so much as he has to borrow, and selling his goods, so far as they are of equal quality, at the same price as the employer who makes no profits, is yet able to accumulate a clear surplus after all obligations are discharged, which surplus is called profits. This is effected by his careful study of the sources of his materials; by his comprehension of the demands of the market; by his steadiness and self-control in the presence of temptations to extravagance or wild ventures; by his organizing force and administrative ability; by his energy, economy, and prudence.

225. THE RISK THEORY OF PROFITS[1]

If science is to justify the popular conception of profit as fundamentally distinct from other kinds of income, it must do so by pointing to something the undertaker does for pay which is rewarded by neither wages, nor interest, nor rent. Just such a peculiar industrial function of the undertaker is found in his being the person who relieves others of risk. He it is who bargains with the laborer for the use of his personal efforts, with the landlord for the use of his land, and with the capitalist for the use of his wealth. To all these classes of economic persons he makes over, or engages to make over, a definite sum of value or power to purchase, and takes the chance of recouping himself out of the proceeds of the product when sold. In doing these things, he evidently renders to each class a service similar to that rendered by an assurance company when it insures us against death, accident, or loss of property. Why should the undertaker do this? What is his inducement? According to the view of his income held by Professor Böhm-Bawerk, these risks are assumed for nothing. Sometimes he will sell his goods for more and sometimes for less; but, on the average, the undertaker will get back, in our author's opinion, just what he has paid to the laborer, the landlord, and the capitalist, plus his own wages of management. In other words, all he secures for himself is the job of "bossing" the affair. Now, it is always pleasant to feel one's self master; but this salve to vanity would hardly serve as a sufficient inducement to practical men of business. Neither is it true that by working for others they could not obtain wages, or a salary, very nearly, or fully, as large as what their personal efforts are worth in the conduct of their own business. Indeed, it often happens that they think so little of their own personal efficiency as managers, that they hire other men to conduct their business, or part of it, for them. But, even if it be granted that the undertaker can give himself a little better job than he could obtain elsewhere, will any such small advantage afford a sufficient inducement for undertaking the risks of business? The supposition is manifestly absurd. But some such inducement must exist, as the element of risk is inseparable from nearly all industrial activity. Except in the rendering of some personal services, in which production and consumption are simultaneous, and in which the producer and the consumer deal directly with each other, and in which, therefore, no element of profit appears, there cannot be any creation of value from which the element of risk is wholly absent. And in the end, and on the average, the final consumers of the product must pay in enhanced price the remuneration for the risk the producer takes upon himself.

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[1] Adapted from Frederick B. Hawley, "The Fundamental Error of 'Kapital und Kapitalzins," in *The Quarterly Journal of Economics*, VI, 283–85 (April, 1892).

There is, then, in all industrial undertakings in which capital is engaged, and in some also in which capital is not engaged, an element of risk which the final consumer has to pay for. And the reason is this: that everybody except the gambler—everybody, that is, engaged in industry—prefers a certainty to an uncertainty. To be relieved of a risk, we are all willing to pay more than the risk, calculated on the doctrine of chances, is worth.

226. CLASSES OF RISKS TO CAPITAL[1]

For theoretical purposes the most significant classification of economic risks to capital is the division into static and dynamic risks. Static risks are those which are inseparable from any form of economic activity, and which will therefore be present in a stationary society as much as in one that is either progressive or retrogressive.

They are connected with losses caused by the irregular action of the forces of nature or the mistakes and misdeeds of human beings. According to the occasion of the loss, they may be further subdivided. Some are caused by inanimate forces, as fire, wind, or water; others by the action of animal or plant life, as moth or mold; others by the carelessness either of the owner of the wealth destroyed or of another person, which gives opportunity for the unfavorable action of animate or inanimate nature; and still others by the fraud or violence of the criminally disposed, seeking to appropriate to their own use wealth which does not belong to them. All these forms of loss will continue while human life endures, and uncertainty as to the exact time or amount of loss to be anticipated from these sources involves also the existence of static risk.

Dynamic risks are those involved in the possibility of dynamic changes. Not all dynamic changes, however, are equally important in this connection; for it is not the change itself which constitutes the risk, but the uncertainty about the time or amount of future changes. Growth of population and increase of capital take place with comparative regularity, and therefore cause little incidental loss, except in so far as they may be necessary to one of the other dynamic changes, and pave the way for it. It is with changes in human wants, and still more with improvements in machinery and organization, that the greatest amount of uncertainty is connected. Those included in the first of these groups originate on the side of consumption; those in the second, on that of production. To some extent the former are capable of being anticipated or even controlled, while the latter occur in the most irregular and uncertain ways, and to that extent there is greater risk connected with the latter than with the former. No one thing is more essential for success in modern business than the ability to forecast future changes in the desires of consumers. It is important to note also that the loss may result from the non-occurrence of an anticipated event, as well as from the occurrence of one which was not anticipated; and that the special cost entailed upon society by the existence of risk will have to be borne whether or not the uncertain loss actually occurs.

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[1] Adapted from Allan H. Willett, *The Economic Theory of Risk and Insurance*, pp. 39–43, 48. Columbia University *Studies in History, Economics, and Public Law*, Vol. XIV (1901).

Examples of the losses caused by these dynamic changes are to be found on every hand. The tide of fashionable travel turns from seashore to mountains, and large investments of capital at ocean resorts lose their value. Bicycles and automobiles are used by people who formerly wanted horses and carriages, and the value of the latter declines. An unexpected change in the fashionable color leaves manufacturers and dealers with stocks of goods which they are obliged to sell at reduced prices. The effect of improvements in mechanical and chemical appliances is equally obvious. A system of street railways operated by cable was introduced in a western city, and when its career of usefulness had hardly begun, it was replaced at great expense by a system operated by electricity. A flouring mill was fitted up with the best available machinery, and within a very short time the new machinery was discarded, and an improved pattern introduced at an expense of hundreds of thousands of dollars. Every investment of capital in forms whose usefulness is limited to the production of a specific commodity, is exposed to the danger of losing its value through discoveries or inventions which render it obsolete and useless.

There is a special form of dynamic risk which needs to be pointed out, both on account of the large part it plays in modern industrial life and because of its great theoretical importance. In a state of society like the present, in which wealth is increasing at a rate out of proportion to the increase in population, there is always a large fund of newly created capital looking for favorable investment. This must be used either in increasing the supply of existing consumption goods or in creating kinds not before produced. These results may be reached either through the larger employment of the kinds of capital goods already in use, or through the creation of new kinds adapted to the production of the old or the new consumption goods. If the only investment for the new capital were to be found in the creation of consumption goods already in use, by methods and machinery now employed, the rate of interest would rapidly fall, and there would be little opportunity for the realization of profit. To avoid this result capital is continually seeking new forms of investment. The simplest device is to invent a cheaper method of creating a commodity already in use. Every improvement of this kind will yield a temporary profit to the entrepreneur who first employs it, but in the end it must result in a lower rate of interest on all capital. As a second resource additional capital goods of forms already employed may be used to create new kinds of consumption goods; or, finally, the new capital may be embodied in new kinds of capital goods, intended for the production of consumption goods not before created. If the new consumption good produced in either way is one which men desire, so that as a result of its production there is a net increase in the sum of human wants, its influence will be felt in the direction of a greater willingness of men to labor, a consequent greater demand for capital, and a retardation in the fall in the rate of interest. The introduction of the new goods and new machinery also offers an opportunity for the realization of temporary profit by those who first produce or use them.

The relation of risk to these different forms of investment of new capital is readily seen. In the first case no uncertainty is involved, except possibly as to the elasticity of the demand for the commodity whose production is increased. In the second case there is to be added uncertainty as to the technical result, a form of uncertainty which is usually connected to a greater or less extent with the introduction of any untried appliance or process. With the progress of physical science, however, it is evident that this form of uncertainty is being gradually eliminated, and that in many cases the successful working of the new device can be safely counted upon in advance.

There is still greater uncertainty involved in the creation of new commodities and new machinery for producing them. If the new commodity is intended to satisfy an existing need, it may be uncertain how far it will accomplish its purpose. The claim that it meets a long felt want is hardly sufficient to assure its success. If, on the other hand, the commodity precedes the want, and is produced with the expectation that its own intrinsic merits and extensive advertising will create a market for it, the possibility of failure is evidently greatly increased. Finally, if existing kinds of capital goods are used in producing a new commodity which fails to find a sale, they can be turned to the employment for which similar machines had been used before and thus preserve a part of their value; but if new kinds of machines have to be brought into service, besides the element of uncertainty as to the technical success of the machine, there is a possibility that the entire investment will be lost if the commodity falls dead on the market.

The investment of capital in attempts to produce new commodities which shall find a ready sale is one of the most characteristic features of modern industrial life. The rapid accumulation of capital, the consequent fall of the rate of interest in old forms of investment, and the large gains to be realized under our patent system by the creation of a new commodity which appeals to the public taste, combine to push production out tentatively in all directions. Large amounts of capital are sunk every year in experiments which end disastrously, and large fortunes are made out of successful ventures. In order to be able to refer without circumlocution to the risk involved in these experiments, it seems best to give it a separate name. For lack of a better term let us call it *developmental risk.* By that term will be meant the uncertainty as to the return to be realized from the investment of capital in the production of a new commodity or of a new capital good, due to the possibility that it may not find the expected market, or may not perform the work for which it was intended.

227. THE CLASSES OF RISK-TAKERS[1]

We have now, I think, attained a position from which we can clearly discriminate between the three classes of risk-takers—enterprisers, speculators, and gamblers. All of them are actuated by the hope of gain, but differ in their grounds for expecting or hoping for gain. The *entrepreneur*, who is only the assumer of industrial or productive risks, when considering a risk, computes as well as he can the actual probability of loss. He then forms a subjective valuation of the risk, which is, of course, considerably greater than the actual risk. The difference between his actuarial and his subjective valuation serves as the minimum limit of the expectation of profit which will induce him to assume the risk. He then secures from the person who will be relieved by his assumption of the risk as much as he can for assuming it, the maximum limit being, of course, that person's subjective valuation of the risk, which must in all cases be greater than his own, or no transaction results. The competition of enterprisers among themselves results, of course, usually in the enterpriser getting but little more than his own subjective valuation; but a little more he does always get in the long run. The essential point, however is that the enterpriser performs a service for which he expects to receive a reward—necessarily, from the circumstances of the case, uncertain in its amount, or, in other words, a true residue.

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[1] From Frederick B. Hawley, "Enterprise and Profit," in *The Quarterly Journal of Economics*, XV, 103–4 (November, 1900).

The *speculator*, on the other hand, does not render, or rather does not mean to render, any service to anybody. The fact that a speculator on the Cotton or Produce Exchange does render a service to society through the party he relieves of the risk is, as we have seen, only incidental. The speculator on the Stock Exchange, whose operations are otherwise similar to his relieves no one of the risk of what the selling price of the product will be, as the subject matter of his speculations is not products but aggregations of capital that produce products. All that the pure speculator has in mind, when he assumes a risk, is to back his own opinion. He believes that the common judgment of the trade about the real value of cotton or wheat or stocks, as expressed in the prices ruling on the exchange, is wrong, just as he may believe that a certain horse may have a better chance to win a race than is expressed by the going odds. Some of these men are correct in their estimate of themselves: their judgment of cotton, wheat, stocks, or horses, is better than that of the average man venturing in these matters. These men win largely and steadily, but it is only because they excel their fellow-speculators. If the average was raised to their level, they would have no advantage in speculation; and they would cease to win with any approach to regularity, and in the long run would neither gain nor lose by their ventures. Speculation is, therefore, merely a distributive force, and cannot be brought by analysis within theories of the productive forces.

The case of the *gambler* differs from that of the speculator only in this: that his subjective valuation of a risk is a negative quantity. The excitement of risk makes it, to the gambler, a good in itself, so that, when he believes the chance of winning or losing to be even, he likes to take the chance when opportunity offers; and when he cannot find an even chance to bet on, without putting himself to too much trouble, he will play faro or some similar game in which he knows that the chances are against him.

228. HEDGING AS AN INSURANCE AGAINST RISK[1]

Not only is future trading, in the absence of definite knowledge by both parties that there is a mutual intention to gamble, sanctioned by the law, but it is an important fact that, notwithstanding the enormous amount of purely speculative operations upon leading cotton exchanges, the future trading system is very extensively used to facilitate transactions in the actual staple, and for the purpose, not of speculation, but in large measure of avoiding speculation.

This employment of the future system, which is technically known as "hedging," is an exceedingly important feature of modern trading in cotton, and, unquestionably, an extremely valuable one. In substance the process of hedging is as follows: A cotton merchant in the South contracts by private arrangement outside of the exchange, say, in July, when the old crop is practically exhausted and before the new crop has matured, to deliver to a spinner, say, in New England or in Liverpool, 10,000 bales of cotton in the following January at a fixed price. At the time of making this agreement he has no cotton in his possession and has no means of immediately obtaining it in the market. Suppose the price stipulated is 8 cents a pound, this figure representing the price at which the merchant expects to be able to buy the cotton, plus an allowance for his expenses and profit on the transaction. If subsequently, owing to early frosts, serious storm damage, or any one of a number of causes, the price of cotton advances to 10 cents a pound, the seller of this cotton is obviously confronted with a heavy loss, since he must go into the market and buy the actual cotton at the advanced price. Under the future system this loss may be very largely avoided by hedging. To escape such loss the seller of the 10,000 bales of cotton, immediately on entering into his agreement, buys on the exchange a corresponding amount of future contracts for cotton deliverable in January.[1] For these contracts let it be assumed that he has paid $7\frac{1}{2}$ cents per pound, or a half cent under the price at which he has undertaken to deliver cotton in January. This is a reasonable assumption; in fact, in actual practice it is the custom for such sellers of cotton to calculate the number of points (hundredths of a cent) necessary to cover their expenses and allow them a profit, and then to agree to deliver cotton to spinners at such number of points above the current price of some future delivery; that is to say, if in July exchange contracts for January delivery are selling at $7\frac{1}{2}$ cents[2] a cotton merchant would reckon the number of points necessary to cover his expenses and profit, and then agree to deliver the cotton to a spinner at this number of points above, or, to use the trade expression, "on" the current price of January contracts.[3] In the case assumed it may be considered that the margin thus allowed is a half-cent. The merchant has, then, bought future contracts for 10,000 bales of cotton at $7\frac{1}{2}$ cents, and has agreed to sell a corresponding quantity of cotton to a spinner at 8 cents, the margin of one-half cent being intended to cover his expenses and leave him a profit. If this margin is maintained intact he is satisfied. Suppose that the price of cotton in the spot market advances sharply to 10 cents before he has purchased the 10,000 bales which he has agreed to deliver to the spinner at 8 cents. Theoretically, the merchant could protect himself by simply holding his future contract until January and then take up the cotton upon it and in turn deliver this cotton to the spinner. In practice, however, owing to the fact that such agreements with spinners are usually for specified grades, while future contracts on exchanges are not, the merchant does not ordinarily take up cotton on his future contract; instead, he goes into the spot market and buys cotton necessary to meet his engagements with the spinner, paying therefor the advanced price, which in the case assumed would be 10 cents. This cotton he must deliver to the spinner at 8 cents; consequently he has suffered a loss. But in the meantime, under a normal working of the future system, his January future contract which he bought on the exchange at 7½ cents should have likewise advanced by substantially the same amount, or to 9½ cents. He sells out his future contract, therefore, at a profit sufficient to offset the loss suffered on his transaction in spot cotton. Even if it be assumed that he receive cotton on his future contract instead of selling that contract out, he should nevertheless be able to sell this cotton in the spot market at a corresponding profit, which would offset his loss on spot cotton purchased. In other words, his margin of profit remains intact and his loss on the actual cotton is covered by the profit on his future transaction. If, on the other hand, the price of cotton in the open market goes down, it is to be expected that the price of future contracts on the exchange will go down in sympathy. In this case he will sell out his future contract at a loss, but, on the other hand, he should be able to buy his actual cotton in the spot market at a correspondingly lower price than he had originally calculated, so that his profit on this spot transaction will counterbalance his loss on his operation in futures.[1]

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[1] Adapted from the *Report of the Commissioner of Corporations on Cotton Exchanges*, Part I (1908), pp. 48–54.

[See also Selection 100: "Organized Exchanges: Futures, Puts, and Calls," and Selection 106: "Organized Speculation and Its Regulation."—EDITORS.]

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[1] In hedging it is not imperative that contracts be bought which mature in the same month that the actual cotton is deliverable, but this is very frequently done.

[2] It will be understood that prices quoted in connection with such contracts are invariably prices per pound.

[3] Allowance must also be made for differences in the value of various grades of cotton.

In the cases described the hedging process was resorted to to protect a merchant who had sold cotton ahead at a time when it was not actually obtainable in the spot market. The future system may be used in a similar manner to protect a merchant who has accumulated a stock of cotton for which he does not have an immediate demand. Assume, for instance, that a large cotton merchant in the South is compelled to take cotton from growers at the beginning of the crop year in very large quantities, and much faster than he can dispose of it to spinners. This is, in fact, a very common occurrence in actual practice. Obviously, as his stock accumulates he is liable to lose heavily in case the price of cotton declines. To protect himself he again resorts to the future market. In this case, however, instead of buying future contracts he sells them short. Thus, if he finds in September that he has 10,000 bales of cotton on hand for which he has paid 8 cents, he sells a corresponding number of contracts for delivery, say, in January, at, say, 8½ cents.[2] If owing to an enormous crop or a poor demand the price of cotton in the open market goes down, his hedge affords him a double protection. In the first place he can simply hold his cotton and when his future contracts mature deliver it upon them, in which case he will, of course, obtain not the reduced price prevailing at the time the cotton is actually delivered but the price at which he actually sold these contracts, namely, 8½ cents.[1]

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[1] This statement is a general one and subject to modification owing to the fact that prices of all grades of cotton do not fluctuate in equal amount.

[2] Owing to the expense of carrying cotton a merchant should, unless a decline in the market is anticipated, be able to sell a distant contract at a premium above the current price. This is, however, by no means invariably the case.

In practice, however, the merchant does not usually thus deliver his stock of cotton in fulfilment of future contracts thus sold, but as the season advances he sells out his actual cotton even though at a lower price. Let it be assumed in the case under consideration that he sells his stock of 10,000 bales at 7 cents, or at 1 cent less than it originally cost him; he has then lost 1 cent a pound, not taking into account carrying charges which have accrued in the meantime. To offset this loss he should be able to buy future contracts on the exchange for 10,000 bales against those which he had sold in September at 8½ cents, obtaining these at a corresponding decline of 1 cent, or, say, 7½ cents. The contract thus purchased will, of course, offset the contract previously sold. In other words, against a loss of 1 cent on his spot transaction he has made a profit of 1 cent on his transaction in futures, so that the margin of one-half cent which he allowed to cover expenses and profit again remains undisturbed.

In ordinary business such a merchant, instead of selling out all his stock of cotton at one time and at one price, disposes of it in parcels at varying prices; but as fast as he sells a given quantity, say, 1,000 bales of his actual cotton, he at once buys future contracts for a like amount on the exchange at corresponding prices so that when his actual cotton is all sold he has "bought in" sufficient future contracts to offset or "cover" those previously sold.

The opportunity for using the future market for hedging purposes is also open to the spinner. Take the case of a spinner who requires 10,000 bales of cotton for his season's operations, and who, at the beginning of the cotton year, has outstanding no contracts for the sale of his manufactured goods. If he were to buy his entire 10,000 bales of cotton or the bulk of it at once and store it, while competitors were to buy only from day to day, a sharp decline in the price of cotton would leave him with a relatively high manufacturing cost for his finished product, which he would consequently be able to dispose of, in competition with those spinners who had postponed their purchases of raw material until the decline, only at a loss or at a reduced profit. Under the future system, such a spinner, having bought his 10,000 bales of actual cotton, could protect himself by immediately going into the future market and selling a corresponding quantity of future contracts. If the price of cotton goes down, the loss on his stock should be made good by his ability to buy in future contracts at a corresponding decline against those which he previously sold short. As fast as he works up a given quantity of his stock of cotton into manufactured goods, he buys in a corresponding number of future contracts.

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[1] The value may, however, be affected by changes in the values of various grades relatively to the basis grade, that is, middling.

The hedging system is used in a somewhat different way in the case of a manufacturer of cotton goods who has sold his product under contract for forward delivery, but who has not purchased a supply of raw material. In this case a decline in the price of cotton is obviously to his advantage. On the other hand, a sharp advance in the price of cotton, after he has agreed to deliver the manufactured goods at a fixed price, as obviously tends to reduce his profits, or perhaps to result in loss. Such a manufacturer would protect himself by buying a sufficient number of contracts in the future market at the time he sells his goods to cover his prospective needs. If the price of cotton goes up before he has completed his contracts for the delivery of cotton goods, his loss on actual cotton is presumably covered by a profit on the futures so purchased; whereas, if the price declines, the loss on his future contracts is correspondingly covered by his saving on purchases of the actual staple. As already pointed out, the manufacturer seldom obtains his cotton by accepting it as a delivery on the contracts so purchased.

The protection thus afforded by the hedging system is far-reaching. Not only may the system be used, in the manner indicated, by the cotton merchant and the spinner to protect themselves against fluctuations in the price of cotton, but it may be used by spinners, or, for that matter, by dealers in cotton goods, in a similar way, to protect themselves against fluctuations in the price of the manufactured product. Suppose, for instance, that a spinner or a wholesale merchant finds that he is carrying a heavy stock of cotton goods at a time when the trade outlook, for one reason or another, is unfavorable, the demand has slackened, and a decline in prices is imminent. Without the future system, the owner of such a stock of goods would be forced either to sacrifice them at the decline or to carry them for an indefinite period in the hope of a subsequent revival in demand, in which case it would be extremely uncertain whether such a subsequent advance would cover the heavy expenses, such as interest, storage, etc., which necessarily accompany any such carrying of the stock. Under the future system he can to a large extent avoid either of these prospective losses by selling future contracts in cotton against his stock of manufactured goods. The actual number of cotton contracts thus sold is usually based upon the weight of cotton required to make a given quantity of goods, which, of course, would vary with the character of the latter. If the owner of such a stock of cotton goods finds that his fears of a decline in the value of his manufactured product are realized, it is reasonably certain that the value of cotton—since it is practically the only raw material used in the manufacture of these goods—will decline in fairly close correspondence, in which case the price of future contracts should also decline in sympathy with the staple. In this way, his loss on the goods is largely counterbalanced by his profit on the sale of cotton contracts.[1]

It is apparent from even the brief illustrations given that a properly conducted future system, through this opportunity for hedging, affords a great protection to the most legitimate sort of business and one of almost incalculable value. It should be noted, however, that hedging does not absolutely guarantee a merchant from loss, since advances or declines in the price of his future contracts may not exactly correspond with advances or declines in the price of spot cotton. The illustrations above given assume that absolutely correct methods of conducting the future business have been established. It can not be too forcibly emphasized, therefore, that in practice it has happened at various times that hedges have afforded a far less perfect measure of protection than above indicated. The hedging process has been explained mainly to show that the future system is something more than a device for mere speculation, and that it presents benefits of great value to those conducting business in actual cotton. In fact, for these, as individuals, the future system, if properly used, may be said to largely eliminate speculation.[2] Obviously, for a merchant, without hedging, to buy 10,000, 20,000, or 50,000 bales of a valuable commodity like cotton, which is subject to great fluctuation in price, would be a highly speculative transaction, whereas, under a perfect working of the hedging system, the element of speculation can be largely avoided. This opportunity for hedging is, indeed, regarded by practically all cotton merchants as almost an absolute necessity under modern methods of conducting business.

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[1] Hedges are sometimes used in this way by retail merchants carrying only a few thousand dollars' worth of goods.

[2] See note 1, page 803.

An idea of the value of the hedging function may be obtained when it is stated that in Great Britain banks very generally refuse to loan money on cotton which is not hedged. Moreover, it is almost universally conceded that, since the introduction of hedging, failures in the cotton trade, which had previously been frequent, have been materially reduced as a direct result of the greater stability with which transactions in spot cotton can be conducted.

229. FIRE INSURANCE AND CREDIT[1]

Fire insurance plays another very important rôle, besides those already enumerated.[2] It is the support of commerce and industry in so far that it is the basis of our whole credit system. The importance of insurance in this respect becomes apparent when we reflect that it is estimated that only about 5 per cent of the world's business is conducted on a cash basis, and that 95 per cent is based on credit.

A thousand illustrations can be cited to show the far-reaching influence of fire and marine insurance upon our credit system. A cargo of grain is shipped from the United States to Europe, and is paid for through the shipment of a cargo of manufactures from Europe to America. Here we have a transaction based on credit and consummated without the use of cash. Commodities are used to pay for commodities, and, owing to the costliness of settling international debts by the actual transfer of gold from one country to another, this practice is almost invariably adopted. The whole transaction is based on credit, and the important thing to remember is that the foreign exchange banker, who undertakes the financial settlement of these two shipments, knows that this credit is guaranteed by a fire and marine insurance policy. The insurance of these cargoes in reliable companies made the transaction as certain as though all payments were made in cash. If the property involved in any of these shipments had been destroyed by fire or by the perils of the sea, the creditors would nevertheless be protected, since the loss would be made good by the insurance companies.

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[1] From Solomon S. Huebner, *Property Insurance*, pp. 9–13. D. Appleton & Co., 1911.

[[2] The author mentions three other functions of fire insurance: (1) The reduction of the element of uncertainty resulting from a combination of risks; (2) the benefit resulting from having a specialized business for the assumption of risks of producers who are ignorant of the relative fire hazard connected with the different types of property; (3) the increase in the efficiency of men because they venture more willingly.—EDITORS.]

Without fire insurance as collateral security the wholesale merchant could not extend credit to the retailer. But with the goods insured in a reliable company against loss by fire, the wholesale merchant can grant an able and honest retailer credit to the extent of five times his capital, and at the same price he would demand if paid cash. Because of the protection promised by an insurance company the wholesaler advances the goods to the retailer. He knows the retailer to be honest and able, and that when the goods are sold he will receive his payment out of the proceeds of the sale. The only risk is the danger of destruction of the goods before the retailer has sold them, thus probably making their payment impossible. Through insurance this risk is eliminated and the retailer becomes a cash trader, as far as the securing of favorable terms from the wholesaler is concerned.

In the same way, the wholesaler, if he is operating on borrowed money, can secure the most favorable rate from the lender of credit, if he protects his banker or the manufacturer of the goods with an insurance policy. In buying the goods the wholesaler may pay only 10 per cent of the purchase price in cash, the remaining 90 per cent being advanced as a loan by the banker or manufacturer, the security for the loan being the goods themselves, but only when insured against loss by fire. Of course the wholesaler or retailer, as the case may be, must pay for the insurance, but the reduced price at which he gets the goods, or the favorable rate of interest at which he secures the credit, pays for this insurance over and over again. As an insurance policy may be made to cover all stock that goes into a store from time to time during the term of the policy, $10,000 of insurance may, in the course of a year, have under its protection from $50,000 to $75,000 worth of merchandise, thus distributing the cost of the insurance over large property values.

It may be shown in another way that fire insurance enables a man with limited capital to transact a business much larger than he otherwise could. Assume a grain dealer to be the possessor of $40,000 capital. With this capital he purchases wheat in the West at $1 a bushel, with a view to selling it in the East or storing it in a warehouse for a more favorable market. If this grain dealer's transactions were limited to cash purchases of wheat, he would probably be obliged to wait several weeks before he could sell his grain and liberate his capital for a new purchase, and his profit would be exceedingly small, since modern competition in that business enables him to realize a profit of only one to two cents per bushel. Grain dealers cannot afford to transact business on this basis, and all are obliged to resort to the use of credit. Instead of limiting his purchases to 40,000 bushels, our dealer will at once have this wheat inspected, graded, represented by warehouse receipts, and will have it insured against loss by fire in a reliable company. Then he will take the warehouse receipts, representing the wheat, and the insurance policy to his banker as collateral security for a loan and the banker will lend him money, probably, to the extent of 90 per cent of the value of the wheat, or $36,000. If wheat remains at $1 a bushel, the dealer can at once purchase 36,000 bushels more with the proceeds of this loan. This new purchase of wheat will again be represented by new warehouse receipts, and again protected by a fire-insurance policy, and the warehouse receipts and the policy covering the 36,000 bushels can be offered to the banker as collateral security for a new loan of 90 per cent of the value, or say $32,400. With this new loan the dealer can at once purchase more wheat, can insure it, and with the new warehouse receipts and the fire-insurance policy as collateral obtain another loan, and with this loan buy more wheat. By repeating the operation until his original capital has been absorbed in margins, it becomes clear that this grain dealer, though he started with only $40,000 capital, is nevertheless enabled, through the use of fire insurance, to do a $300,000 business, and accordingly makes seven or eight times the profit he could realize if his business were restricted to cash transactions. The banker is willing to extend the credit, partly because he knows that wheat always has a ready market on our big produce exchanges, thus in case of a decline in price giving him a chance to sell the wheat before the margin of ten points on the loan is exhausted, and partly because the fire-insurance policy protects him against the loss by fire of the security back of his loans. Likewise the exporter of a cargo of cotton may insure it under a marine policy, and with the policy and bill of lading as collateral may at once command money at the usual rate of interest, with which to buy another cargo and repeat the operation.

Insurance also helps to build homes, since the owner of ground who wants to build a home can borrow a larger sum of money on the building, if insured, and at a more favorable rate, than if there were no insurance. Mortgagees invariably have their interest in the mortgagor's property protected by an insurance policy. In a hundred ways fire and marine insurance have become absolute necessities of trade, without the assuring protection of which the large undertakings of today would be a gigantic gamble, and would never be attempted if liable to miscarry through a single fire or marine disaster. As it is, enormous sums are borrowed on stocks and bonds and warehouse receipts; merchants sell their wares on credit; investors furnish millions for the upbuilding of vast industries supporting whole towns; capitalists make loans on buildings worth many times the value of the ground on which they are built—all being willing to do this because they know that the insurance policy stands as collateral between them and loss. "All in all," as Mr. Campbell writes, "no statistics would be possible to show the extent of the fire-insurance business as now practiced, for those figures would need to be as large as those of all trade. There is practically no combustible property that is not insured against fire; every car of grain, ever scowload of lumber, every bale of cotton, every package of manufactured goods, from the time it assumes merchantable shape until it is entirely consumed, is thus conditionally the property of insurers. Without such a system, modern commerce would be impossible. The fire-insurance policy, or the assignment of certain interests in it, is attached to the mortgage given by the farmer for money to build his new barn; the fire-insurance policy is as necessary to the banker as is the warehouse or shipping receipt on the strength of which he advances funds for that magic of commerce 'moving the crop'; fire insurance is as important to the manufacturer as is the foundation under his factory; fire insurance is, in fact, the very backbone of that part of social life which has to do with making, moving, and keeping material things."

230. EMBARRASSMENT OF INDUSTRY THROUGH LACK OF INSURANCE[1]

Business men in Missouri are beginning to realize that an unprecedented situation will exist in their state after April 30, when all the stock fire insurance companies will stop doing business because of what they hold to be the impossible requirements of the new Orr anti-compact law. Loans are being canceled, lines of commercial credit are being reduced or cut off entirely and it is at last being realized to how many branches of trade the protection of fire insurance is absolutely essential.

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[1] Adapted from *The Journal of Commerce and Commercial Bulletin*, April 18, 1913.

In the meantime business men are urging the state authorities to grant them some relief. In many lines of activity, where credit is essential, based upon the fire insurance to protect the actual values, business will be practically paralyzed.

The Metropolitan Life has called off negotiations for a loan of $1,200,000 it was preparing to make for the erection of a ten-story office building in St. Louis, refusing to go any further until it can be assured that its value can be protected by sound insurance.

The chief credit manager of a large mercantile house said today, "The situation in Missouri threatens to be serious. Lack of fire insurance will undoubtedly affect our action in extending credit. There are many merchants to whom we might extend a reasonable line, provided their goods not yet paid for in full were protected by insurance, whom we will be forced to refuse if we cannot have this necessary guarantee."

231. SOME FUNCTIONS AND EFFECTS OF INSURANCE[1]

Technical insurance is defined as that arrangement by which persons subject to a risk agree directly or indirectly with each other that those who escape the threatening event will make up to those who suffer by it the whole or a part of the loss.

The main purpose of technical insurance is to relieve the individual of the burden of risk resting upon him. Aside, however, from the direct effect of technical insurance, there are certain subsidiary effects upon the social organism. Some of these effects are good, and some are unfavorable. Let us consider the good effects: (*a*) The decrease of the cost of production. Under the head of producer's insurance we saw that risk to the individual producer was a subjective cost, and that marginal subjective estimates of risk enter in as a determinant of objective cost. Now, technical insurance comes in, and removes the major part of this item of cost. The producer, in place of carrying a risk that is burdensome to him, pays a premium which is relatively light. Nowhere is this more true than in the case of marine insurance. Imagine that marine insurance did not exist. The shipping business would be carried on only by great companies possessing many ships, so that they could get the benefit of self-insurance. It needs no argument to prove that the price of foreign merchandise would be much higher than now. Fire insurance is another excellent example of this fact. This brings us directly to the next advantage of technical insurance, which is a corollary of what has just been said. (*b*) It makes it possible for small producers to hold their own, where otherwise they would be forced out of business. (*c*) Technical insurance prevents the impairment of the productive force of society by putting productive agents back into their old positions after a disaster. President Walker[1] shows how labor may become permanently degraded as the result of temporary misfortune. Suppose a village whose chief support is a single industrial establishment. Suppose this establishment burned, with no insurance. The employer cannot readily transfer himself to another place where his talents can be used so advantageously, and the same is true of the laborers. Both become discouraged, and the industrial efficiency of master and man may be forever impaired. Insurance guards against this calamity. Fire insurance, accident insurance, and insurance against sickness are efficient in the same way. Life insurance in a more direct way accomplishes the same result by keeping families together, and allowing the orphan children to be brought up with proper training, all of which results ultimately in increased productivity. (*d*) Technical insurance is an aid to credit. The practice is universal of requiring houses, or other inflammable property on which money is raised by mortgage, to be insured. Without insurance, many who now borrow freely from savings-banks and other lenders would be unable to borrow at all, and others would borrow only at ruinous rates. (*e*) Life insurance combines what I have called self-insurance of the nature of saving with technical insurance. A form of life insurance which does not do this is conceivable, and has sometimes been tried; but the common form lays aside a reserve fund against the claim of each person insured. This form of insurance, therefore, encourages capitalization. This, to be sure, is not a net gain, because a man who is insured, feeling a sense of security, is likely to spend that part of his income which is left after paying his insurance premium more freely than would be the case if he were not insured. But, as premiums are generally paid out of income, we may conclude with Schönberg[1] that "there is generally a stronger building up of private capital than would otherwise follow." (*f*) The sociological and ethical effects which result from the security and comfort which insurance gives are influences for good.

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[1] Adapted from John Haynes, "Risk as an Economic Factor," in *The Quarterly Journal of Economics*, IX, 442–46 (July, 1895).

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[1] *Wages Question*, chap. iv.

The good effects above enumerated are not without some offsetting disadvantages. Security is good, but security as well as hazard may have an unfavorable effect upon industry. (*a*) Intensity of effort is diminished. Make the ordinary man's future secure even on a low material basis, and his energy will flag to some extent. (*b*) Carelessness is encouraged by insurance. Much wealth, for instance, goes up in smoke simply because vigilance is relaxed on account of the property being insured. (*c*) The greatest disadvantage of technical insurance is the encouragement which it gives to dishonesty. Property is wilfully destroyed to get insurance, thus increasing the net amount of property destroyed and increasing the cost of insurance to honest men. I have been informed that where a mill burns in a factory village the village hotel is almost sure to follow. The same informant states that a prudent insurance man of his acquaintance makes it a rule, on learning of the burning of a mill in a village, to cancel all insurance held by him on the hotel. It is estimated[2] that from 35 to 50 per cent of the loss by fire in the United States is chargeable to incendiarism.

Technical insurance is attended with a large expense for management, and, at present, this is excessive. Not that insurance men make greater gains than other business men, but there are more agents for all kinds of insurance companies than there is economic justification for. This is true of a great many other kinds of business. But insurance furnishes one of the best examples of the tremendous wastes of the competitive system.

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[1] *Volkswirthschaftslehre*, p. 798.

[2] Thomson, "Waste by Fire," *Forum*, II, 27 ff. (September, 1886).

232. FINANCIAL STATEMENTS OF TWO CORPORATIONS

I[1]

The Income Account

Manufacturing earnings		$1,400,097.00
Other earnings		125,434.00
Total income		$1,525,531.00
Expenses and maintenance	$312,218.00	
Interest on bonds	850,000.00	
Sinking fund	100,000.00	
		$1,262,218.00
Available for dividends		263,313.00
Dividends paid		249,564.00
Carried to surplus		$13,749.00

The Balance Sheet

Assets		Liabilities	
Paper mill plants and real estate	$16,689,441	Capital stock	$22,000,000
Good will, trade marks, etc	18,010,150	Bonded debt	17,000,000
Cash	722,754	Accounts payable and current bills	1,221
Bills and accounts receivable	1,321,935	Sinking fund reserve	1,504,750
Goods and materials	2,901,697	Surplus	2,019,380
Bonds of the company in treasury	1,120,152		
Miscellaneous stocks	254,472		
Sinking fund	1,504,750		
Total	$42,525,351	Total	$42,525,351

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[1] Adapted from American Writing Paper Company, *Annual Report*, 1911.

II[1]

THE INCOME ACCOUNT

Sales of harvesting machinery, tillage implements, engines, tractors, cream separators, farm wagons, manure spreaders, auto-wagons, twine, and steel products........	$125,438,104.30	
Miscellaneous earnings and charges (net).........................	1,080,133.32	
		$126,518,237.62
Deduct:		
Cost of manufacturing and distributing......................	$98,088,042.66	
Ordinary repairs and maintenance	3,241,255.51	
Renewals and minor improvements	776,358.74	
Experimental, development, and patent expenses..................	746,147.92	
Administrative and general expenses	740,390.36	
Interest on loans.................	2,372,307.70	
Appropriation for fire insurance fund	250,000.00	
Reserve for pension fund..........	250,000.00	
Reserve for industrial accident fund	250,000.00	
Reserves for plant depreciation and ore extinguishment.............	2,308,137.57	
Reserves for contingent losses and collection expenses on receivables	1,100,000.00	
		$110,122,640.46
Net profit.................		$ 16,395,597.16
Preferred stock dividends	$4,200,000.00	
Common stock dividends...........	4,000,000.00	
		$8,200,000.00
Undivided profits carried to surplus		8,195,597.16
Previous surplus.................		23,390,946.90
Total surplus at end of year...		$31,586,544.06

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[1] From International Harvester Company, *Annual Report*, 1912.

THE COMBINED BALANCE SHEET

Assets

Property account:			
Real estate and plant property, ore mines, coal and timber lands, December 31, 1911		$75,527,097.21	
Net capital additions during 1912		2,668,110.91	
		$78,195,208.12	
Expenditures for stripping and development at ore mines		1,070,408.93	
			$79,265,617.05
Deferred charges to operations			191,512.41
Fire insurance fund assets			1,484,237.50
Current assets:			
Inventories:			
Finished products, raw materials, etc., at close of 1912 season		$49,386,478.19	
Subsequent material purchases and manufacture for 1913 season		25,691,737.68	
		$75,060,215.87	
Receivables:			
Farmers' and agents' notes	$62,437,389.11		
Accounts receivable	22,761,854.14		
	$85,199,243.25		
Deduct:			
Accumulated reserves for contingent losses	$3,700,864.87		
		$81,498,378.38	
Cash		5,420,582.69	
			$161,979,176.94
			$242,920,543.90

Liabilities

Capital stock:			
Preferred		$60,000,000.00	
Common		80,000,000.00	$140,000,000.00
Purchase-money obligations			296,000.00
Current liabilities:			
Bills payable		$35,260,220.00	
Accounts Payable:			
Current invoices, payrolls, accrued interest and taxes, etc.	$11,687,114.60		
Preferred stock dividend (payable March 1, 1913)	1,050,000.00		
Common stock dividend (payable January 15, 1913)	1,000,000.00	$13,737,114.60	$48,997,334.60
Reserves:			
Plant depreciation and extinguishment		$11,643,083.39	
Special maintenance		1,597,948.56	
Collection expenses and receivables		1,100,000.00	
Fire insurance fund		2,612,939.84	
Pension fund		1,298,568.45	
Industrial accident fund		788,125.00	
Contingent		3,000,000.00	22,040,665.24
Surplus			31,586,544.06
			$242,920,543.90

233. MONOPOLY PROFITS: THE TOBACCO TRUST[1]

This coincidence of a high rate of earnings with a high degree of control evidently is not accidental. Wherever possible, the Combination has taken advantage of its monopolistic position to increase its profits. On the one hand, it has been able to reduce the costs of production as well as the expenses of selling, and on the other hand it has maintained the prices of its products at the high level established at the time the Combination was effected. This high level of prices, it will be remembered, was made necessary by a temporary heavy increase in the internal revenue tax. The monopolistic position of the Combination enabled it, however, to appropriate to itself practically the entire reduction subsequently made in the tax, by holding prices at their former level. Moreover, whatever increase in costs of production through increase in the price of raw materials has occurred since then has been practically offset by additional increases in the price of the product.

234. AN EXAMPLE OF FORTUITOUS PROFITS[2]

In his report for 1866–67, the commissioner called attention to the circumstance that, although the profits which had accrued in the manufacture of cotton during the period of the war were acknowledged by one of the leading manufacturers of the country to have been "painfully large," yet such profits were the result of extreme advances in the prices of raw and manufactured material previously on hand, rather than of the operations of strictly legitimate business; and in proof of this assumption, a statement was submitted, showing that in the case of one large cotton manufacturing corporation in New England, if their mills had been burnt at the commencement of the war, their insurance lost, and their whole capital, other than that invested in cotton, sunk, but the cotton on hand sold at the highest obtainable prices, the result would have afforded to the stockholders a permanent annuity of at least twelve per cent on their original investment. Now, what was true of cotton manufacturing at that period was equally true of the wool manufacture; and in a majority of instances the large profits realized by the woolen manufacturers of the United States from 1863 to 1866 were due rather to the rise in the price of their raw material than to any legitimate profits derived from the manufacture and sale of their productions.

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[1] From the *Report of the Commissioner of Corporations on the Tobacco Industry*, Part I (1909), p. 165.

[2] From the *Report of the Special Commissioner of the Revenue* (1869), p. xciii.

235. THE PROFITS OF AN UNDERWRITING SYNDICATE[1]

Very convincing evidence of an excessive issue of securities by the Steel Corporation is afforded by the enormous payment which it allowed the underwriting syndicate, so called. The syndicate agreement provided that in addition to undertaking to secure at least 51 per cent of the stocks of the various companies originally to be acquired, the syndicate should furnish the Steel Corporation with $25,000,000 cash capital. In addition to this sum, the syndicate incurred expenses of about $3,000,000 attendant upon the organization of the Corporation, through fees, purchase of miscellaneous securities, etc., which sum should be added to the $25,000,000 cash capital provided, in stating the total cash consideration provided by the syndicate. For this total cash consideration of $28,000,000 and its services the underwriting syndicate received from the Steel Corporation the enormous total of practically 1,300,000 shares of its stock (half preferred and half common), of an aggregate par value of $130,000,000. That this huge block of stock was actually received by the syndicate was explicitly stated in the preliminary report of the Steel Corporation, which, after giving the amounts of stock issued to acquire the securities of the constituent concerns, further stated:

> The residue of the common and preferred stock of this corporation delivered to the syndicate under the contract of March 1, 1901, and not used for the acquisition by it of the stocks of the specified companies, being the shares which, as stated in the syndicate circular of March 2, 1901, were to be retained by and to belong to the syndicate, amounted to 649,987 shares of preferred stock, and 649,988 shares of common stock. This residue of stock or the proceeds thereof, after reimbursing the syndicate the $25,000,000 in cash which it paid to the Corporation, and approximately $3,000,000 for other syndicate obligations and expenses, constituted surplus or profit of the syndicate.

This enormous "residue," as it was termed, yielded a very large profit to the syndicate. At valuations of 44 for the common stock and 94 for the preferred stock (the average prices, respectively, at which these shares sold during the first year after the organization of the Steel Corporation), the total value of these stocks thus delivered to the syndicate would have been approximately $89,700,000. As a matter of fact, it appears that the amount actually realized by the syndicate was about $90,500,000. After reimbursing the syndicate for the $25,000,000 cash capital raised by it, and also for the $3,000,000 incurred in expenses, the syndicate managers paid out in profits to syndicate members substantially $50,000,000. Before distributing these huge profits, however, J. P. Morgan & Co., as syndicate managers, reserved as their compensation 20 per cent of the total profits. The total profits consequently were one-fourth greater than the amount thus distributed to syndicate members, or, in other words, they were, roughly speaking, $62,500,000.

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[1] Adapted from the *Report of the Commissioner of Corporations on the Steel Industry*, Part I (1911), pp. 243–46.

[For the terms of this underwriting agreement see Selection 89.—Editors.]

It may be noted that about $4,000,000 of this total was not in the form of cash. After reimbursing the syndicate for its cash obligations of $28,000,000, the syndicate managers paid four cash dividends of $10,000,000 each (after reserving in each case their 20 per cent commission), and a final dividend of $6,000,000 in cash plus $4,000,000 paid-up participation in a syndicate then being organized by J. P. Morgan & Co. to underwrite the so-called "bond conversion" scheme of the Corporation. There is some question whether this $4,000,000 participation in the second syndicate realized its par value on the liquidation of that syndicate, but any difference between the amount finally realized and the par value ($4,000,000) was undoubtedly so small that it can be disregarded. The profit on this operation over and above all expenses may therefore be fairly stated at $62,500,000.

There can be no question that this huge compensation to the syndicate, or, in other words, the enormous block of stock upon which this profit was realized, was greatly in excess of a reasonable compensation. The syndicate was, of course, properly to be reimbursed not only for the $25,000,000 new cash capital which it provided the Corporation, and for the $3,000,000 of expenses incurred, but was also entitled to some compensation for the labor and risk of raising these sums. Moreover, the syndicate presumably rendered some other services of value in facilitating the organization of the Corporation and the flotation of its securities, for which it would reasonably expect some compensation. However, these services certainly were not worth anything like the enormous price which the Corporation paid. Nor can this payment be justified on the ground of extraordinary risk. The Corporation was organized at a time of pronounced buoyancy in the stock market and decided prosperity in the steel industry. It is true that only a short time after its organization the famous Northern Pacific corner and the resulting stock-market panic occurred. Such a contingency, however, is one of the possibilities that all underwriting syndicates have to take account of, and was entitled to no more weight in this case than in the case of numerous other underwriting arrangements which were made by other large corporations at the same period.

It is, moreover, true that the nominal liability of the syndicate, or what may be called its nominal capital, was $200,000,000. This, however, was the liability of the syndicate subscribers to the syndicate managers and not to the Steel Corporation, to which its cash liability, as just shown, was only $25,000,000 (not including $3,000,000 of expenses). It was the understanding, tacit or expressed, that the syndicate managers did not expect to call upon the syndicate subscribers for more than a single payment of 12½ per cent of the total nominal liability ($200,000,000), or $25,000,000. As a matter of fact, that was the only call actually made. Had a further call been made upon the syndicate subscribers, this would have been to meet temporary exigencies accompanying the flotation of the Steel Corporation's stock, and not to make any further payment to the Corporation itself. The large nominal obligation of the syndicate subscribers to the syndicate managers apparently was determined upon in part with a view to disarming subsequent criticism of the enormous compensation which it received.

A very important consideration to point out is that while the syndicate was, from the standpoint of the prestige and reputation of the bankers identified with it, nominally compelled to see the organization of the Steel Corporation successfully through, there was no legal obligation of this sort whatever. Instead, a circular of the syndicate managers to the stockholders of the various constituent concerns which were to be acquired stated very positively that the syndicate managers might at any time wholly abandon the transaction, in which event the stockholders in the acquired companies would have no claim whatever against the syndicate managers. This is shown by the fourth paragraph in the official circular of J. P. Morgan & Co., the syndicate managers, as follows:

> The undersigned are authorized to proceed with the proposed transaction whenever in their sole judgment a sufficient amount of the stocks

of said companies, or of any of them, shall have been deposited. *They reserve the right, at any time, in their discretion, to wholly abandon the transaction* and to withdraw their offer herein contained, as to all the depositors, by publication of notice of such withdrawal in two daily newspapers in the city of New York; and in that event all the deposited shares shall be returned without charge upon surrender of the respective receipts therefor. *In case of any such withdrawal* of the offer hereunder as to all or to any depositors, *such depositors shall have no claim against the undersigned*, and shall only be entitled to receive their deposited securities upon surrender of the respective receipts therefor.

It may be objected, as just suggested, that it is almost incredible that the syndicate managers would abandon the transaction. Nevertheless, this distinct provision that they might do so if they saw fit without giving any explanation and without rendering themselves in the slightest way liable, clearly is entitled to great weight in judging the risks assumed by the syndicate. As a matter of fact, as the sequel showed, the syndicate was compelled to bear only a very moderate risk, while it was one of the most profitable ever organized in the United States.

236. A CLASSIFICATION OF BUSINESS FAILURES BY CAUSES (1911 and 1912)[1]

Failures Due to	United States, Percentage				Canada, Percentage			
	Number		Liabilities		Number		Liabilities	
	1912	1911	1912	1911	1912	1911	1912	1911
Incompetence	30.2	27.0	26.8	23.5	16.3	16.1	22.8	18.9
Inexperience	4.6	4.1	3.0	2.2	5.1	2.9	3.5	1.5
Lack of capital	29.7	31.4	33.5	28.3	50.3	49.3	45.8	47.8
Unwise credits	2.0	2.0	2.6	2.2	1.3	.9	1.7	1.0
Failure of others	1.3	1.3	4.9	4.2	.9	1.1	2.5	1.4
Extravagance	.7	.9	.9	1.2	.8	.9	.5	3.2
Neglect	2.0	2.2	1.0	1.3	4.3	4.1	3.1	2.5
Competition	1.9	2.9	1.3	4.8	1.0	1.1	.6	.6
Specific conditions	16.5	16.9	13.8	20.7	12.8	14.6	8.8	10.1
Speculation	.8	.7	3.4	2.7	.5	.9	.4	3.1
Fraud	10.3	10.6	8.8	8.9	6.7	8.1	10.3	9.9

[1] *Bradstreet's*, XLI, 53.

237. TWO INSTANCES OF FAILURE

The Allis-Chalmers Company has defaulted on the interest payments due on its bonds. It is unofficially reported that the company's embarrassment is largely due (1) to the decline in orders for its steam engines, due both to the competition of turbine engines and to the increasing use of hydro-electric power; (2) to the inability to obtain sufficient business to keep more than a part of its large electric manufacturing plant in operation; and (3) prospectively to the heavy sinking-fund requirement which, beginning this year, requires a steadily increasing annual purchase of the company's bonds. The directors are of the opinion that the business cannot be profitably continued in the future unless additional working capital is supplied and the fixed charges reduced, and that these can only be secured by reorganization.[1]

The creditors' committee of the United States Finishing Company has made a preliminary report, or a summary of the situation, and has furnished a digest over which amazed stockholders will pore anxiously for some days to come.

Briefly stated, the United States Finishing Company has through subsidiary corporations engaged in merchandising, in speculating in its own stocks and bonds, and in financial collateral ventures, such as the purchase and sale of lumber, the manufacture of packing boxes, the purchase and sale of chemicals, supplies, etc. Some of these investments, noticeably that in the Queen Dyeing Company, have proved profitable, but in the main the working capital of the United States Finishing Company has been depleted to the extent of approximately $1,250,000. A portion of the loss can be accounted for through the payment of unearned dividends. Through the recent failure of the corporation, G. A. Stafford & Co., an additional loss was sustained. The Finishing Company owns the entire capital stock of the Sterling Improvement Company, which company had made substantial purchases of the stock and bonds of the Finishing Company, so that through the depreciation of the securities of the Finishing Company a further loss was incurred. The market value of all the investments is problematical and the realization of their intrinsic value promises to become a slow process.[2]

[1] Adapted from *The Commercial and Financial Chronicle*, January 6, 1912.

[2] Adapted from *The Journal of Commerce and Commercial Bulletin*, May 6, 1913.

XIX. PUBLIC FINANCE AND TAXATION

238. THE GROWTH OF STATE AND LOCAL EXPENDITURES[1]

In discussing the growth of state expenditures during the nineteenth century, there are adequate reasons for dividing the period in quarter-century divisions on the basis of the different character of the expenditures. The first quarter, from 1800 to 1825, presents nothing remarkable, for the expenditures were neither large nor varied. Cities had not yet risen to any importance as industrial centers, and the large debts of the Revolutionary War had been assumed by the national government.

The total population of the United States was only about ten millions at the close of the first quarter century, and this population was distributed over a wide area, with wants few and activities simple. The bulk of the expenditures went for the primary functions of government, with some of the states spending considerable sums on education and others on internal improvements. However, during the next quarter century, from 1825 to 1850, there was a decided growth of state expenditures, for this was the period of state activity in internal improvement and public banking.

The masses of people in their enthusiasm for internal improvements did not think that these undertakings could mean a burden to them in the way of increased tax levies, as is evidenced by the debates on the various bills proposed for their construction. They supposed that the increase in value of property would more than offset the cost of their construction, and it was not until the later forties that they were awakened from their delusion, although care must always be taken in speaking of these internal improvements as failures, for the indirect wealth and social well-being which they brought to the country was very great. But the people, on account of permitting their enthusiasm to lead them to construct transportation routes beyond the industrial demands, and through their enthusiasms being taken advantage of by speculators, found themselves with large financial burdens resting upon them at the close of the second quarter of the century, which must be met by increased taxation or repudiated. Some of the states petitioned Congress to assume these state debts, resting their claim on the ground that the public lands had been transferred to the national government for the specific aid of the states, and now was the time to extend this aid. Congress, however, refused, and there was nothing left for the states to do but to pay for these past expenditures.

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[1] Adapted from W. F. Gephart, "The Growth of State and Local Expenditures," in *State and Local Taxation*, Addresses and Proceedings of the Second International Conference (1908), pp. 514–24. International Tax Association, 1909.

As tax rates began to increase, many of the states either amended their constitutions or adopted new ones with provisions which would prevent a like occurrence. These amendments and new provisions limited the borrowing power of the legislatures and prohibited the loaning of the credit of the state or the local governments to or in the aid of joint stock companies. After 1850 the expenditures of the states were kept down, since they were paying for past ones. The policy of limited expenditure and debt payment continued until the Civil War, when another period of large expenditures began, so that by 1870 the state debts amounted to $352,866,698, the largest sum at the close of any decade in the history of the states.

The quarter century closing with 1875 may be described as one in which there was a decided tendency to limit expenditures, largely due to the large outlays of the preceding quarter century, which were largely met out of the revenues of the later period. This policy of limited state expenditures was in a large way continued for the next decade after 1875, although during these years there was somewhat of an increase for such developmental functions as education, especially in the Middle West, through the establishment of state universities, and the generally more liberal aid to education, for the establishment of institutions for the care of the defective and delinquent classes, for the establishment of commissions or departments for investigation or administration such, for example, as state health boards, railroad and labor commissions.

Since 1885 there has been a tendency for state expenditures to increase, owing to the states taking up new lines of activity and extending some of the old functions.

It has been held that state expenditures will tend to decrease, as compared with local and national expenditures, and while this is probably true, as a very general proposition, yet during the past two decades, particularly the last, we have seen the states assuming new functions, notwithstanding the oft proclaimed infringement of the state sphere of action by the national government. Among these new lines of activity which will call for increased expenditures may be mentioned the following:

(*a*) The centralization of state administration, such, for example, as the extensive powers of state boards of health. In some states no waterworks, garbage disposal, or sewage disposal plant may be constructed by a local government without this board's approval.

(*b*) The establishment of public utility commissions or the extension of the powers of railway commissions.

(*c*) The increase in the state aid to education, not only in favor of the state educational institutions, but also for the common schools. Ohio, for example, has passed a recent law, which fixes a minimum salary for public school-teachers and provides that where the local tax raised under the maximum rate is not sufficient to pay this minimum salary, appropriations shall be made out of the state treasury.

(*d*) Further aid in internal improvements, such, for example as the rebuilding of canals and aid in constructing highways, which aid under a late Ohio law amounts to 50 per cent of the cost of the road.

(*e*) Expenditures for other institutions, such as penal, reformatory, and charitable, which in many states total large sums yearly.

Thus it seems that, owing to the increasing solidarity of state interests, the state will assume in the future many new lines of activity, which will call for increased expenditures; and to meet these the states will have to abandon such a great reliance on the present outgrown general property tax.

In 1840, 21.79 per cent of our population was engaged in agriculture, while in 1900 only 13.64 per cent was so engaged. In 1850, 4.12 per cent of our population was engaged in manufacture and the mechanical arts, while in 1900 this had risen to 9.28 per cent which would seem to indicate a shifting of the population to the cities.

This aggregation of population within limited areas has meant a continually nicer adjustment of individual to individual; for so complicated and numerous are the relations of a city dweller to his fellow, that those who will, do, and those who will not, must be made to, recognize the limits of personal action, in order that all may enjoy the larger privileges which come from collective activities and expenditures. All this has meant and will mean in the future the taking over by the city of many activities which could formerly be left to the individual.

Sanitation and inspection is but one of these new activities, which has had a remarkable development during the last decade and will doubtless have a much greater one in the future; for when it is realized what a vast work there is to do in this field, we may well hope that the sanitary policeman will soon be a more important official than the peace and order one of today. Without further statement of the well-known fact that local expenditures have grown rapidly, we may take up the discussion of several questions which suggest themselves.

First, expenditures are increasing more rapidly than population.

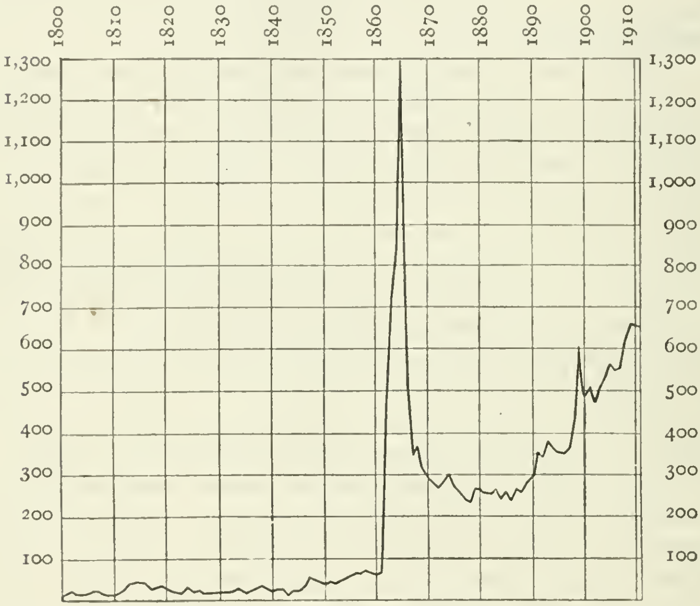
Second, since 1890 municipal debts have been increasing more rapidly than population, and on this point it may be remarked that while theoretically the municipal citizen will admit that he ought to pay for what he uses and enjoys, yet this is not always done, and as a result the present generation is paying for the necessities and conveniences enjoyed by the past generation and leaving the coming generation to pay for much of what it is now enjoying. That this is true is due to two facts: first, it is much of a relief to present purses to place the burden on the future, and this is made possible by the financial system; and second, it is often impossible to calculate the lifetime of a public work. The plant may prove too small; mistakes in construction and use of material may easily be made.

Third, assessed valuation tends to increase more rapidly than population, but less rapidly than expenditures. Hence the general property tax is not an adequate or satisfactory source of revenue for growing cities, unless the rate of taxation is increased, and the statistics given show that the rate has decreased. A decreased tax rate, whether it represents an apparent or a real saving, is one of the best means for the political "boss," who is so powerful in city affairs, to secure votes.

Fourth, there must be an increase in receipts from sources other than the general property tax in order to meet these increased expenditures. There is doubtless a great waste in city expenditures, but it is questionable whether any considerable portion of this is due to "graft," as is popularly supposed. Doubtless a much greater portion of the waste comes from a failure to understand the economic and social work which the modern city is called upon to do through its officials and employees. Cities have grown so rapidly that we have failed to devise methods to meet the problems resulting from this rapid growth. In the United States the average citizen has given little attention to city government and problems, preferring to give his time to his private business and permitting the public business to be done by the ignorant and dishonest, with the result that he knows but imperfectly what is secured for money expended.

239. FEDERAL EXPENDITURES (ORDINARY) 1800–1911[1]

(Figures are in millions of dollars)



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[1] The data are taken from the *Statistical Abstract of the United States* and the *Annual Report of the Secretary of the Treasury.*

240. THE COST OF GOVERNMENT, NATIONAL, STATE, AND LOCAL[1]

I. NATIONAL

Receipts of the United States from Different Sources in 1911, Measured by Per Cent of Total, by Area, and by Population, As Shown by the Census of 1910. Fiscal Year Ending June 30, 1911

Source of Receipts	Per Cent of Total	Per Square Mile*	Per Capita†
I. General revenues as follows:			
a) From taxes and licenses—			
1) Customs	31.526	$105.75	$3.42
2) Internal revenue	28.971	97.18	3.14
3) Corporation excise	3.360	11.27	.36
4) Bank note tax	0.351	1.18	.04
5–6) Other taxes	0.369	1.24	.04
Total taxes and licenses	64.577	$216.62	$7.00
b) From fees, fines, and penalties	1.062	3.56	.12
Total coercive revenues	65.639	$220.18	$7.12
c) From gifts and indemnities	0.068	.23	.01
Total general revenues	65.707	$220.41	$7.13
II. Commercial revenues, as follows:			
a) From departmental earnings—			
1) Profits on coinage	0.529	1.77	.06
2) Panama canal, sales, etc	0.158	.53	.02
3) Other sales, rentals, etc	0.209	.71	.02
Total departmental earnings	0.896	$ 3.01	$ .10
b–d) From lands, forests and sealskins	0.999	3.35	.11
e) From postal service	23.845	79.99	2.58
f) From interest	0.061	.20	.01
Total commercial revenues	25.801	$ 86.55	$2.80
Total revenue receipts	91.508	306.96	9.93
III. Non-revenue receipts, as follows:			
a) Offsets to outlays (realty sales)	0.114	.38	.01
b) Panama bonds	1.768	5.94	.19
c) Transfers and refunds	0.637	2.13	.07
d) Agency and trust transactions—			
1) National bank note fund	4.033	13.53	.44
2) Trust funds	1.198	4.02	.13
Total non-revenue receipts	7.750	$26.00	$ .84
IV. Receipts from local sources, as follows:			
a) Alaska fund and game licenses	0.018	.06	.00
b) District of Columbia fund	0.708	2.38	.08
Total from local sources	0.726	$2.44	$ .08
V. Net receipts unclassified	0.016	.05	.00
Total Receipts	100.000	$335.45	$10.85

* Based on land area exclusive of outlying possessions (2,973,890 square miles).
† Based on census of 1910 exclusive of outlying possessions (91,972,266 population).

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[1] From E. V. D. Robinson, "The Cost of Government in Minnesota," in the *Third Biennial Report of the Minnesota Tax Commission* (1912), pp. 267–95.

Payments of the United States for Different Purposes in 1911, Measured by Per Cent of Total, by Area, and by Population, As Shown by the Census of 1910. Fiscal Year Ending June 30, 1911

Purpose of Payment	Per Cent of Total	Per Square Mile*	Per Capita†
I. **Government in general, as follows:**			
1. Legislation—			
a) Congress	0.733	$2.37	$ .08
b) Congressional commissions	0.013	.04	.00
c) Public printing office	0.564	1.84	.06
d) Library of congress	0.067	.22	.01
e) Other legislative expenses	0.032	.10	.00
Total for legislation	1.409	$4.57	$ .15
2. Administration—			
a) Executive proper	0.022	.07	.00
b) Executive commissions	0.026	.08	.00
c) Civil service commission	0.029	.09	.00
d) Executive departments (general)—			
1) Treasury	2.468	8.00	.26
2) Interior	0.394	1.28	.04
3) Public buildings	2.157	7.00	.23
Total for administration	5.096	$16.52	$ .53
Total for government in general	6.505	21.09	.68
II. **Protection of life and property, as follows:**			
1. Preservation of the peace—			
a) National defense—			
1) Foreign affairs	0.247	.80	.03
2) Army and navy	24.554	79.60	2.57
b) Courts and crimes	0.986	3.20	.10
Total for preservation of the peace	25.787	$83.60	$2.70
2. Safeguarding public health and safety	1.411	4.57	.15
3. Regulation of industry in public interest	0.469	1.52	.05
Total for protection of life and property	27.667	$89.69	$2.90
III. **Promotion of efficiency as follows:**			
1. Public works—			
a) Irrigation and drainage	0.834	2.70	.09
b) Highways	0.021	.07	.00
c–d) Inland canals, rivers and harbors	3.485	11.30	.37
e) Panama canal	3.845	12.47	.40
f) Telegraph and cable lines	0.029	.09	.00
Total public works	8.214	$26.63	$ .86
2. Other aids to private industries	1.137	3.69	.12
3. Scientific investigation and publication	1.272	4.12	.13
4. Education	0.756	2.45	.08
5. Recreation	0.037	.12	.00
6. Soldiers' homes and pensions	16.920	54.85	1.78
7. Indian service	0.675	2.19	.07
Total for promotion of efficiency	29.011	$94.05	$3.04

* Based on land area exclusive of outlying possessions (2,973,890 square miles).

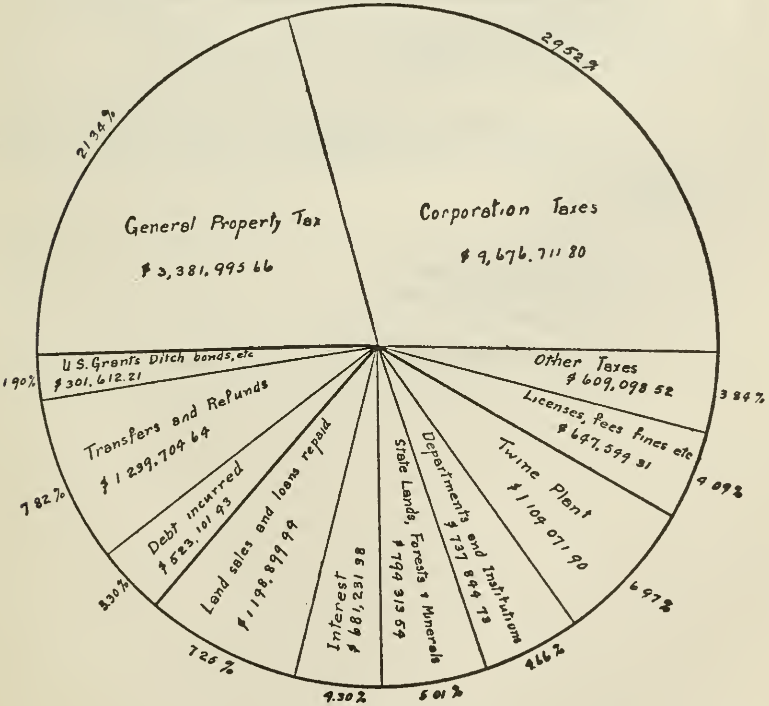
† Based on census of 1910 exclusive of outlying possessions (91,972,266 population).

Payments of the United States by Area and Population—*Continued*

Purpose of Payment	Per Cent of Total	Per Square Mile	Per Capita
IV. Public services, as follows:			
1–2. Public lands and forests	0.995	3.23	.10
3. Mints and currency	0.484	1.57	.05
4. Postal savings banks	0.006	.02	.00
5. Postal service	24.834	80.50	2.61
Total for public services	26.319	$85.32	$2.76
V. Local governments	1.199	3.89	.13
Total for maintenance and permanent improvements	90.701	$294.04	$9.51
VI. Interest on public debt	2.211	7.17	.23
VII. Principal of public debt	3.654	11.84	.38
VIII. Transfers, refunds, agency and trust payments	3.434	11.13	.36
Total Payments	100.000	$324.18	$10.48

II. STATE (MINNESOTA)

Total Receipts of the State of Minnesota in 1911



PAYMENTS OF THE STATE OF MINNESOTA IN 1911 BY PURPOSES, MEASURED BY PER CENT OF TOTAL, BY TRUE VALUATION, AND BY POPULATION

Items	Per Cent of Total	Per $10,000 True Valuation	Per Capita
I. State government in general	4.391	$1.95	$ .35
II. Protection of life and property:			
1. Preservation of the peace—			
a) Courts	1.663	.74	.13
b) Militia	0.699	.31	.06
c) Correctional institutions	7.734	3.45	.61
Total preservation of the peace	10.096	$4.50	$ .80
2. Preservation of public health—			
a) Against disease	0.965	.43	.08
b) Against accident	0.072	.03	.00
c) Against impure food	0.506	.23	.04
Total preservation of public health	1.543	$ .69	$ .12
3. Protection of property against natural agencies—			
a) Against fire	2.401	1.07	.19
b) Against floods	1.124	.50	.09
c) Against animals and disease	0.516	.23	.04
Total protection against natural agencies	4.041	$1.80	$ .32
4. Regulation of industry—			
a) Transportation and exchange	0.797	.35	.06
b) Grain and hay inspection	1.700	.75	.13
c) Bureau of labor	0.222	.10	.02
Total for regulation of industry	2.719	$1.20	$ .21
Total protection of life and property	18.399	8.19	1.45
III. Promotion of efficiency:			
1. Public works—			
a) Transportation	0.667	.30	.05
b) Forest reserves	0.022	.01	.00
Total for public works	0.689	$ .31	$ .05
2. Bounties and grants for industries	0.490	.22	.04
3. Bureau of immigration	0.121	.05	.01
Total physical efficiency	1.300	$ .58	$ .10

PAYMENTS OF STATE OF MINNESOTA IN 1911 BY PURPOSES—*Continued*

Items	Per Cent of Total	Per $10,000 True Valuation	Per Capita
4. Education—			
a) In general	0.087	$ .04	$ .01
b) University	9.955	4.43	.78
c) Agricultural schools	1.822	.81	.15
d) (*e*) Normal and high schools	5.001	2.22	.39
f) (*g*) Common schools	18.125	8.06	1.43
Total education	34.990	$15.56	$2.76
5. Libraries	0.485	.22	.04
Total schools and libraries	35.475	$15.78	$2.80
6–7. Art, monuments, and recreation	0.756	.34	.06
8–9. Compensation for injuries, pensions, etc.	1.926	.86	.1
10. Humane and charitable institutions	7.199	3.20	.57
11. Unclassified	0.028	.01	.00
Total for promotion of efficiency	46.684	$20.77	$3.68
General maintenance and improvements	69.474	30.91	5.48
IV. Commercial enterprises—			
1. Dictionary fund	0.017	.01	.00
2. State lands	0.476	.21	.04
3. Twine plant	6.662	2.96	.52
Total for commercial enterprises	7.155	$3.18	$ .56
Total maintenance and improvements	76.629	34.09	6.04
V. Interest paid	0.341	.15	.03
VI. Paid on principal of state debt	6.923	3.08	.54
VII. Transfers, refunds, agency and trust fund payments	16.107	7.16	1.27
TOTAL PAYMENTS	100.000	$44.48	$7.88

III. MUNICIPAL

RECEIPTS BY SOURCES AND PAYMENTS BY PURPOSES, MEASURED BY PER CENT OF TOTAL, BY TRUE VALUATION, AND BY POPULATION. FISCAL YEAR ENDING DECEMBER 31, 1911, OR DATE NEAREST THERETO

CLASS I CITIES—Population above 75,000
(Includes Minneapolis, St. Paul, and Duluth)

ITEMS	AVERAGE THREE CITIES CLASS I		
	Per Cent of Total	Per $10,000 True Valuation	Per Capita
RECEIPTS:			
I. Revenue receipts, as follows:			
A. General revenues—			
a) From taxes (excluding special assessments)	41.8	$94.74	$14.72
b) From liquor licenses	4.6	10.37	1.61
c) From all other licenses	0.4	.98	.15
d) From fees, fines and forfeits	0.5	1.06	.16
e) From state grants for schools	2.0	4.61	.72
f) From state grants for armories and fire departments	0.4	.81	.13
g) From other grants and gifts	......	....	......
h) From other general revenues	......	.05	.01
Total general revenues	49.7	$112.62	$17.50
B. Commercial revenues—			
a) From special assessments	8.9	20.11	3.13
b) From privileges	......	.00	.00
c) From department earnings, rents, sales, etc.	1.2	2.60	.40
d) From educational institutions	0.2	.44	.07
e) From public service enterprises	6.8	15.37	2.39
f) From interest	1.0	2.33	.36
Total commercial revenues	18.1	$40.85	$6.35
Total revenue receipts	67.8	153.47	23.85
II. Non-revenue receipts as follows:			
a) From offsets to outlays	0.1	.19	.03
b) From debt incurred during year	30.4	68.83	10.70
c) From transfers, refunds, agency and trust collections	1.7	3.90	.60
Total non-revenue receipts	32.2	$72.92	$11.33
TOTAL RECEIPTS	100.0	$226.39	$35.18

Receipts by Sources, and Payments by Purposes—*Continued*

Items	Average Three Cities Class I		
	Per Cent of Total	Per $10,000 True Valuation	Per Capita
Payments:			
I. For maintenance, as follows:			
a) For departments—			
1) Government in general	2.4	$5.22	$ .81
2) Protection of life and property	12.9	28.16	4.38
3) Health and sanitation (including sewers)	4.0	8.65	1.34
4) Highways and bridges	3.3	7.17	1.11
5) Charities	1.2	2.58	.40
6) Recreation	1.5	3.45	.54
7) Unclassified	0.1	.30	.05
b) For educational institutions—			
1) Public schools	15.0	32.72	5.08
2) Library, etc	1.0	2.25	.35
c) For public service enterprises	4.0	8.82	1.37
Total for maintenance	45.4	$99.32	$15.43
II. For interest (including state loans), as follows:			
a) On department debt	4.2	9.17	1.42
b) On educational debt	1.4	3.04	.47
c) On debt for public service enterprises	1.6	3.41	.54
Total for maintenance and interest	52.6	$114.94	$17.86
III. For outlays for permanent improvements, as follows:			
a) For departmental operations—			
1) Government in general	0.1	.02	.00
2) Protection of life and property	0.3	.75	.12
3) Health and sanitation (including sewers)	4.6	10.15	1.58
4) Highways and bridges	6.3	13.78	2.14
5) Charities	0.6	1.33	.21
6) Recreation	3.5	7.61	1.18
7) Unclassified	0.4	.64	.10
b) For educational institutions—			
1) Public schools	6.4	14.02	2.18
2) Library, etc	0.2	.52	.08
c) For public service enterprises	4.1	9.02	1.40
Total for permanent improvements	26.5	$57.84	$8.99
IV. Paid on principal of debt, as follows:			
a) Bonds (including state loans)	1.4	3.11	.48
b) Temporary loans	11.0	24.02	3.73
c) Warrants of previous years	6.0	13.23	2.06
V. Transfers, refunds, agency and trust payments	2.5	5.43	.85
Total Payments	100.0	$218.57	$33.97

IV. SUMMARY VIEW

Section I of Table I gives total payments for all purposes, including transfers within and between governmental units. As a result of such transfers, it involves duplications amounting to some 40 million dollars. This is the method by which the sensational estimates of cost of government have been made, that have attracted considerable attention from time to time.

Section II presents net payments, excluding transfers within governmental units and counting transfers between units but once—in the books of the organization which finally spent the money.

This division of the table is of interest chiefly as showing the relative extension of functions of the several grades of government. It is significant and highly characteristic of the United States that nearly two-thirds (63.8 per cent) of the net expenditures were made by the local county governments, leaving only 12.4 per cent for the state and 23.8 per cent for the United States.

These figures would seem to indicate that, while the ratio may be somewhat different in other states, the usual assumption that the federal government accounts for forty per cent of the total governmental expenditures is no longer tenable. Twenty-five per cent would probably be nearer the mark.

Section III of Table I shows the net cost to taxpayers of all grades of government, as measured by total coercive revenues. Like section II this section excludes transfers within units, but unlike section II it also excludes commercial revenues and counts transfers between governmental units in the books of the grantor rather than the grantee, and then only in so far as paid out of coercive revenues. For example, the one mill school tax levied by the state is charged to the state, but the interest and other commercial income which forms the larger part of the state school apportionment is not included because it is not a charge to the tax payer.

On this basis the local and county governments are chargeable with 57.5 per cent, the state with 16.4 per cent, and the federal government with 26.1 per cent of the total cost of government.

The total cost to the people of Minnesota is shown as 56.7 million dollars. This sum was $151.97 per $10,000 true valuation in the state, and $26.91 per capita (based on the estimated population of Minnesota in 1911). It was also 23.6 per cent of the income from the total estimated wealth of the state (Table D) at 5 per cent interest.

TABLE I

COST OF ALL GRADES OF GOVERNMENT IN 1911 TO TAXPAYERS IN MINNESOTA

Items	Local	County	State	Federal[1]	All Grades
I. Total payments (including duplications):					
1. Amounts	$47,518,731.77[2]	$41,787,733.63	$16,598,869.98	$21,759,410.98	$127,664,746.36
2. Per cent of total	37.2 per cent	32.7 per cent	13.0 per cent	17.1 per cent	100.0 per cent
3. Per capita[3]	$22.55	$19.83	$7.88	$10.33	$60.59
II. Net payments (excluding duplications):					
4. Amounts	$46,714,272.77	$9,312,127.15[5]	$10,911,679.82[6]	$20,927,480.82[7]	$87,865,560.56
5. Per cent of total	53.2 per cent	10.6 per cent	12.4 per cent	23.8 per cent	100 per cent
6. Per capita[3]	$22.17	$4.42	$5.18	$9.93	$41.70
III. Cost of taxpayers (total coercive revenues):					
7. Amounts (excluding commercial revenues)	$26,760,305.14[8]	$5,853,665.01[9]	$9,315,350.29[10]	$14,779,010.19[11]	$56,708,330.63
8. Per cent of total	47.2 per cent	10.3 per cent	16.4 per cent	26.1 per cent	100 per cent
9. Per square mile	$330.95	$72.39	$115.21	$182.78	$701.33
10. Per $10,000 true valuation	71.71	15.69	24.96	39.61	151.97
11. Per cent which cost was of income from total wealth at 5 per cent interest[12]	11.1 per cent	2.4 per cent	3.9 per cent	6.2 per cent	23.6 per cent
12. Cost per capita (excluding commercial revenues)	$12.70	$2.78	$4.42	$7.01	$26.91
IV. 13. Cost to family of five for general property and federal taxes if they own $3,000 real estate and $1,000 personal property (true valuation)[13]	$24.41	$6.08	$4.59	$35.05	$70.13

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[1] Proportionate share of Minnesota on basis of population in 1910 (United States, exclusive of outlying possessions, 91,972,266; Minnesota 2,075,708 = 2.257 per cent).

[2] Receipts as given in Table II.

[3] Based on estimated population of 2,107,042 in 1911, as shown in Table I.

[4] Receipts as per Table II, exclusive of item 19.

[5] Payments for county purposes as given in Table IV, items 1–8, inclusive.

[6] Payments as given in Table VI, exclusive of bounties, armory aid, fire relief aid, school aid and apportionment and transfers, refunds, agency and trust payments.

[7] Pro rata share (see foot note 1) of payments in Table VIII, exclusive of grants for agricultural schools, 5, 3, and 2 per cent on cash land sales, maintenance of state soldiers' homes and transfers, refunds, etc.

[8] Based on Table II, columns 1, 2, 5, 6, 7, and 9.

[9] Payments for county purposes, Table IV, columns 1, 2, 5, and 7, less Table III, columns 5, 6, and 13.

[10] Based on Table V, item I, 1–6, inclusive.

[11] Based on Table VII, item I, *a*) and *b*).

[12] Using total estimated wealth for 1911 in analysis Table D, $4,796,399,264.

[13] At average ratio of assessed to true valuation for real estate (33.41 per cent) and personal property (28 per cent) less exemption of $100 = $1,182.30 assessed valuation, and average tax rate (29.67 mills) which prevailed in state in 1911, distributed as per state auditor's abstract of tax lists, viz.: state taxes, 3.88 mills; county taxes, 5.14 mills; and local taxes, 20.65 mills.

To this cost of government must of course be added the cost of subsidizing the protected interests, whatever that may be.

Section IV of Table I gives the cost of all grades of government to a family of five persons in 1911, assuming that the head of the family was a householder or farmer owning real estate worth $3,000 and personal property worth $1,000; and assuming, further, that the property was assessed and taxed at the average rates prevailing in the state after allowing the usual personal property exemption.

The essential difference between sections III and IV of Table I is that the former includes, while the latter excludes, that portion of the cost of government which is defrayed by gross earnings taxes, liquor and other licenses, fees, fines and penalties. In other words, the head of this particular family did not own railroad stock, or conduct a saloon, or become liable to fines or penalties. He was simply an average law-abiding citizen who paid direct taxes on real and personal property to the local, county, and state governments, and indirect taxes to the federal government. The question is, how much did he pay for these several purposes?

Accepting the rates of tax levy for different grades of government shown on the state auditor's abstract of tax lists, as indicating the division of the taxes paid, it appears that this citizen paid direct taxes as follows: to the local government, $24.41, to the county government, $6.08, to the state government, $4.59; and that he also paid to the United States government as indirect taxes $35.05. The total cost of government for the family of five persons was thus $70.13.

In order to show more clearly the relations of these several governmental costs, the figures in section IV of Table I are embodied in several diagrams. In all of these the several segments of the circle correspond in size with the amounts shown in dollars and cents, while the figures on the circumference indicate what per cent each amount is of the total.

Diagram 1 shows the amounts paid by the head of this family of five for different units of government, and the per cent which each is of the total. Over half the total went to the federal government, and most of the remainder to the local governments, leaving but 15.2 per cent for the county and state combined.

Diagram 2 shows how the $4.95 paid by the head of the family for state purposes was allotted to the various funds. This distribution was computed on the proportion of the total state levy of

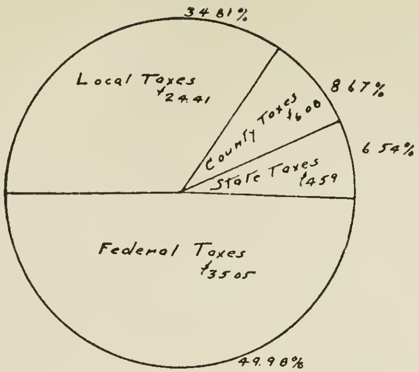


DIAGRAM 1

DISTRIBUTION OF TOTAL COST OF GOVERNMENT IN 1911

Showing what was paid for all grades of government under general property and federal tax laws by family of five owning property as specified under diagram 2. Total cost of government to family of five, $70.13.

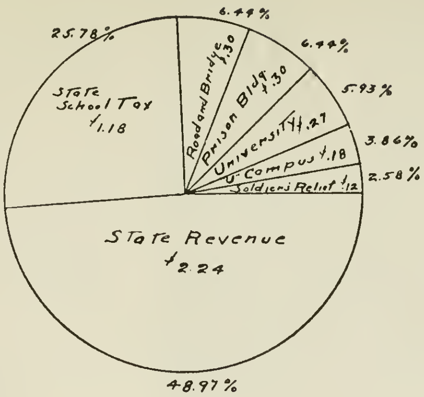


DIAGRAM 2

DISTRIBUTION OF STATE TAX ON GENERAL PROPERTY IN 1911

Showing what was paid, and to what funds, on $3,000 real estate and $1,000 personal property (true valuation), at an average ratio of assessed to true valuation and average tax rate prevailing in state. Total tax on $4,000 of property for state purposes, $4.59.

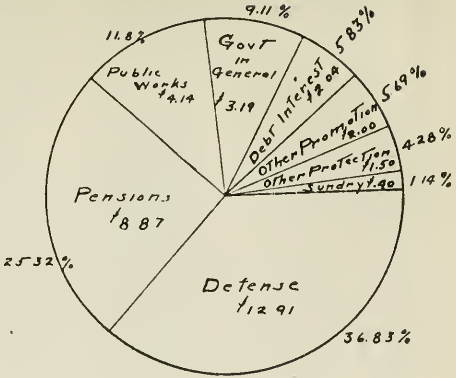


DIAGRAM 3

DISTRIBUTION OF FEDERAL TAXES IN 1911

Showing what a family of five paid, and for what purposes. Total paid for federal purposes, $35.05.

3.88 mills specifically made for each fund. Unfortunately, time did not permit the further subdivision of these allotments.

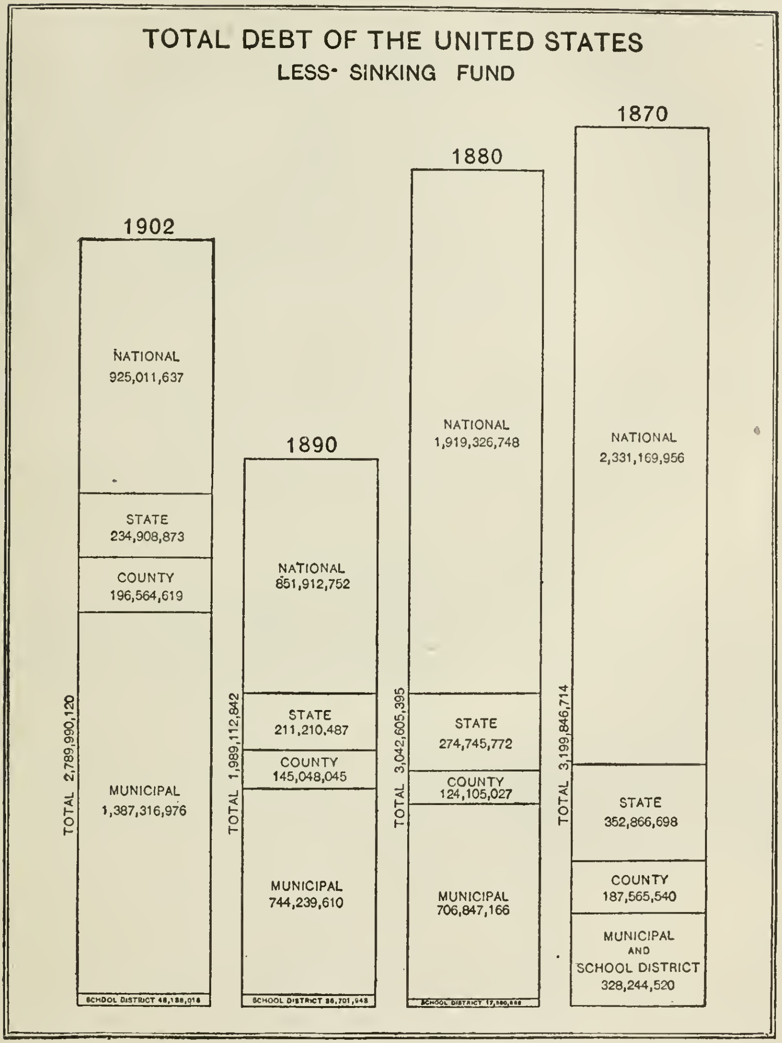
On this basis the amount which the head of this family of five, owning $4000 worth of property, paid into the state revenue fund, was $2.24, state school fund, $1.18, road and bridge fund, $0.30, prison building fund, $0.30, university fund, $0.27, campus fund, $0.18, and soldiers' relief, $0.12.

Diagram 3 shows how the $35.05 paid by the head of the family to the federal government was spent. This distribution was made in proportion to the net federal expenditures after offsetting commercial and other non-coercive receipts against the corresponding payments.

On this basis national defense took $12.91 out of the $35.05 contributed. Pensions claimed $8.87, public works, $4.14, government in general, $3.19, debt and interest, $2.04, promotion of efficiency other than by public works, $2.00, protection, aside from military, $1.50, and sundry, $0.40.

It will be noted that after eliminating commercial and other non-coercive revenues and expenditures, as is done in this diagram, the expenditure for defense amounts to 36.83 per cent of the total, pensions 25.32 per cent, debt and interest, 5.83 per cent, making a total of 67.98 per cent chargeable chiefly to wars past and wars to come.

241. TOTAL DEBT OF THE UNITED STATES, NATIONAL, STATE, AND LOCAL[1]



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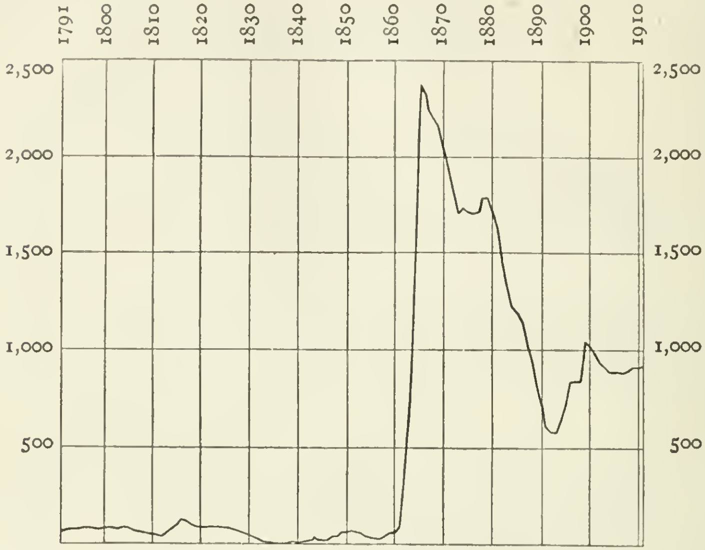
[1] From the Special Report of the U.S. Census Office, *Wealth, Debt, and Taxation* (1907), p. 135.

242. PUBLIC DEBT OF THE UNITED STATES, 1791–1911[1]

(Figures are in millions of dollars)



This table shows, historically, the amount of the public debt exclusive of legal-tender notes, gold and silver certificates, treasury notes, etc., and without deduction of the amount of cash in the Treasury.

[1] The figures up to 1855 are taken from Plate IV of the U.S. Census *Report on Valuation, Taxation, and Public Indebtedness* (1884). Subsequent figures are the figures of "Total Interest-bearing Debt" as tabulated in the *Annual Report of the Secretary of the Treasury.*

243. STATEMENT OF THE PUBLIC DEBT AND OF THE CASH IN THE TREASURY OF THE UNITED STATES, JUNE 30, 1915[1]

INTEREST-BEARING DEBT

TITLE OF LOAN	AUTHORIZING ACT	RATE	WHEN ISSUED	WHEN REDEEMABLE OR PAYABLE	INTEREST PAYABLE	AMOUNT ISSUED	OUTSTANDING JUNE 30, 1915		
							Registered	Coupon	Total
Consols of 1930	March 14, 1900	2 per cent	1900	Pay. after April 1, 1930	J., O., J., A.	$646,250,150.00	$643,288,150.00	$ 2,962,000.00	$646,250,150.00
Loan of 1908–18	June 13, 1898	3 per cent	1898	Red. after Aug. 1, 1908. Pay. Aug. 1, 1918	A., N., F., M.	*198,792,660.00	46,810,320.00	17,135,140.00	63,945,460.00
Loan of 1925	January 14, 1875	4 per cent	1895–96	Pay. after Feb. 1, 1925	F., M., A., N.	†162,315,400.00	101,280,400.00	17,209,500.00	118,489,900.00
Panama Canal Loan:									
Series 1906	June 28, 1902, and Dec. 21, 1905	2 per cent	1906	Red. after Aug. 1, 1916. Pay. Aug. 1, 1936	N., F., M., A.	54,631,980.00	54,611,420.00	20,560.00	54,631,980.00
Series 1908	June 28, 1902, and Dec. 21, 1905	2 per cent	1908	Red. after Nov. 1, 1918 Pay. Nov. 1, 1938	F., M., A., N.	30,000,000.00	29,687,520.00	312,480.00	30,000,000.00
Series 1911	Aug. 5, 1909, Feb. 4, 1910, and Mar. 2, 1911	3 per cent	1911	Pay. June 1, 1961	S., D., M., J.	50,000,000.00	40,525,400.00	9,474,600.00	50,000,000.00
Postal Savings Bonds (1st to 7th series)	June 25, 1910	2½ per cent	1911–14	Red. after 1 yr. from date of issue Pay. 20 yrs. from date of issue	Jan., July	5,508,060.00	4,828,680.00	679,380.00	5,508,060.00
Postal Savings Bonds 1915–1935 (8th series)	June 25, 1910	2½ per cent	1915	Red. after January 1, 1916 Pay. Jan. 1, 1935	Jan., July	933,540.00	845,060.00	88,480.00	933,540.00
Aggregate of Interest-bearing Debt						$1,148,431,790.00	$921,876,950.00	$47,882,140.00	$969,759,090.00

* Of this original amount issued $132,449,900 have been refunded into the 2 per cent consols of 1930, and $2,396,800 have been purchased for the sinking fund and canceled, and $500 have otherwise been purchased and canceled.

† Of this original amount issued $43,825,500 have been purchased for the sinking fund and canceled.

DEBT ON WHICH INTEREST HAS CEASED SINCE MATURITY

Funded Loan of 1891, continued at 2 per cent, called for redemption May 18, 1900; interest ceased August 18, 1900	$ 4,000.00
Funded Loan of 1891, matured September 2, 1891	23,650.00
Loan of 1904, matured February 2, 1904	13,050.00
Funded Loan of 1907, matured July 2, 1907	552,350.00
Refunding Certificates, matured July 1, 1907	12,590.00
Old Debt matured at various dates prior to January 1, 1861, and other items of debt matured at various dates subsequent to January 1, 1861	901,620.26
Aggregate of Debt on which interest has ceased since maturity	$1,507,260.26

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[1] From the bulletin issued by the Secretary of the Treasury, July 1, 1915.

DEBT BEARING NO INTEREST

United States Notes	February 25, 1862; July 11, 1862; March 3, 1863	$346,681,016.00
Old Demand Notes	July 17, 1861; February 12, 1862	53,152.50
National Bank Notes: Redemption Fund*	July 14, 1890; included as "debt bearing no interest" according to specific requirement of the act of July 14, 1890	19,390,345.50
Fractional Currency	July 17, 1862; March 3, 1863; June 30, 1864; less $8,375,934 estimated as lost or destroyed, act of June 21, 1879	6,850,239.90
Aggregate of Debt bearing no interest		$372,974,753.90

CERTIFICATES AND NOTES ISSUED ON DEPOSITS OF COIN AND BULLION

	Classification	In Circulation	In the Treasury	Outstanding
Gold Certificates	March 3, 1863; July 12, 1882; March 14, 1900	$1,139,003,559.00	$78,879,210.00†	$1,217,882,769.00
Silver Certificates	February 28, 1878; August 4, 1886; March 3, 1887; March 14, 1900	482,713,988.00	10,745,012.00	493,459,000.00
Treasury Notes of 1890	July 14, 1890; March 14, 1900	2,245,710.00	8,290.00	2,254,000.00
Aggregate of Certificates and Treasury Notes, offset by cash in the Treasury		$1,623,963,257.00	$89,632,512.00	$1,713,595,769.00

GROSS DEBT

	JUNE 30, 1915	MAY 31, 1915
Interest-bearing debt	$969,759,090.00	$969,759,090.00
Debt on which interest has ceased	1,507,260.26	1,510,070.26
Debt bearing no interest	372,974,753.90	372,715,280.40
Aggregate	$1,344,241,104.16	$1,343,984,440.66
Certificates and Treasury notes	1,713,595,769.00	1,628,781,769.00
Gross debt	$3,057,836,873.16	$2,972,766,209.66

NET DEBT

Gross debt (opposite)		$3,057,836,873.16
CASH IN TREASURY—		
Currency trust funds	$1,713,595,769.00	
Gold reserve fund	152,977,036.63	
Net balance, general fund	82,025,716.03	
National-bank notes: Redemption fund	19,390,345.50	
(Included opposite in public debt under requirement of act of Congress, July 14, 1890.)		
Total		$1,967,988,867.16
Net debt, June 30, 1915		$1,089,848,006.00

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* The "National Bank Notes: Redemption Fund" was established under requirement of the act of July 14, 1890, which states: Deposits made by National Banks to redeem circulating notes shall be covered into the Treasury as miscellaneous receipts and the Treasury shall redeem from the general cash the circulating notes which come into its possession subject to redemption. The balance of deposits shall, at the close of each month, be reported on the Monthly Public Debt Statement as a debt of the United States bearing no interest.

† Includes $44,083,700 demand gold certificates received in exchange for gold and order gold certificates.

CASH IN THE TREASURY AND CURRENT LIABILITIES

GENERAL FUND

Assets	
CASH:	
In Treasury Offices—	
Gold Coin	$53,549,470.52
Gold Certificates	34,795,510.00
Standard Silver Dollars	7,910,351.00
Silver Certificates	10,745,012.00
United States Notes	14,645,022.00
Treasury Notes of 1890	8,290.00
Certified Checks on Banks	474,572.01
Federal Reserve Notes	3,758,790.00
National-Bank Notes	32,620,946.70
Subsidiary Silver Coin	26,397,048.04
Fractional Currency	57.00
Minor Coin	2,838,267.68
Silver Bullion (available for subsidiary coinage)	4,268,320.32
Total	$192,020,657.27
In National-Bank Depositaries—	
To Credit of Treasurer United States	88,274,715.90
To Credit of Postmasters, Judicial Officers, etc	5,055,810.99
In Treasury Philippines—	
To Credit of Treasurer United States	3,998,336.53
To Credit of Disbursing Officers	1,950,987.99
Total	$291,300,508.68

Liabilities	
CURRENT LIABILITIES:	
In Treasury Offices—	
Disbursing officers' balances	$52,283,742.83
Outstanding warrants	1,306,288.15
Outstanding Treasurer's checks	2,322,235.77
Outstanding interest checks	292,509.18
Post Office Department balances	5,111,293.00
Postal Savings balances	4 494,240.12
Judicial officers' balances, etc	8,376,017.03
Redemption fund, Federal Reserve notes	1,070,324.71
National-bank notes: Redemption fund	*19,390,345.50
Retirement of additional circulating notes—Act May 30, 1908	67,302,605.55
National-bank 5 per cent Fund	29,423,267.45
Assets of failed national banks	4,112,879.23
Miscellaneous (exchanges, etc.)	5,553,618.17
Total	$201,039,366.69
In National-Bank Depositaries—	
Judicial officers' balances, etc	5,055,810.99
Outstanding warrants	102,182.78
In Treasury Philippines—	
Disbursing officers' balances	1,950,987.99
Outstanding warrants	1,126,444.20
	$209,274,792.65
Net balance in general fund	82,025,716.03
Total	$291,300,508.68

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*The "National Bank Notes: Redemption Fund" was established under requirement of the act of July 14, 1890, which states: Deposits made by National Banks to redeem circulating notes shall be covered into the Treasury as miscellaneous receipts, and the Treasury shall redeem from the general cash the circulating notes which come into its possession subject to redemption. The balance of deposits shall, at the close of each month, be reported on the Monthly Public Debt Statement as a debt of the United States bearing no interest.

MEMORANDUM SHOWING AMOUNTS DUE UNITED STATES FROM PACIFIC RAILROADS ON ACCOUNT OF BONDS ISSUED IN AID OF THEIR CONSTRUCTION

Name of Road	Principal	Interest	Total
Central Branch Union Pacific	$1,600,000.00	$2,011,812.98	$3,611,812.98

CASH IN THE TREASURY AND CURRENT LIABILITIES—*Continued*

THE CURRENCY TRUST FUNDS, THE GENERAL FUND, AND THE GOLD RESERVE FUND

Assets	
CURRENCY TRUST FUNDS:	
Gold Coin	$ 846,488,915.00
Gold Bullion	327,310,154.00
Total Gold	$1,173,799,069.00
Silver Dollars	493,459,000.00
Silver Dollars of 1890	2,254,000.00
Total Currency Trust Funds	$1,669,512,069.00
GENERAL FUND:	
Total Cash Assets, as above	291,300,508.68
GOLD RESERVE FUND:	
Gold Coin	102,977,036.63
Gold Bullion	50,000,000.00
Grand Total Cash Assets in Treasury	$2,113,789,614.31

Liabilities		
OUTSTANDING CERTIFICATES:		
Gold Certificates Outstanding		$1,217,882,769.00
Less demand gold certificates received in exchange for gold and order gold certificates		44,083,700.00
Net		$1,173,799,069.00
Silver Certificates Outstanding		493,459,000.00
Treasury Notes of 1890 Outstanding		2,254,000.00
Total Outstanding Certificates, etc.		$1,669,512,069.00
GENERAL FUND LIABILITIES AND BALANCE:		
Total Liabilities, as above		209,274,792.65
Balance in General Fund, as above	$82,025,716.03	
GOLD RESERVE (Reserved against $346,681,016 of U.S. Notes and $2,254,000 of Treasury Notes of 1890)	152,977,036.63	
Total Net Balances		235,002,752.66
		$2,113,789,614.31

244. TOTAL AND PER CAPITA NATIONAL DEBT OF CERTAIN COUNTRIES PRIOR TO THE WAR OF 1914[1]

Countries	Total Debt	Per Capita Debt	Countries	Total Debt	Per Capita Debt
Argentina	$ 732,398,000	$84.18	Japan	$1,267,445,000	$23.92
Austria-Hungary	1,043,675,000	20.26	Mexico	226,404,000	14.66
Belgium	825,518,000	108.07	Netherlands	461,649,000	74.30
Brazil	1,026,312,000	42.22	New Zealand	485,338,000	421.30
Bulgaria	176,554,000	37.04	Roumania	316,693,000	41.66
Canada	544,391,000	70.17	Russia	4,536,939,000	26.70
Chile	207,704,000	59.96	Serbia	126,232,000	27.31
China	969,189,000	2.88	Spain	1,814,270,000	90.97
France	6,346,129,000	160.25	Switzerland	23,614,000	6.25
German Empire	1,194,052,000	17.87	Turkey	675,654,000	32.80
German States	3,854,795,000	57.68	United Kingdom	3,443,799,000	74.81
Italy	2,921,153,000	82.89	United States	1,103,665,000	11.03

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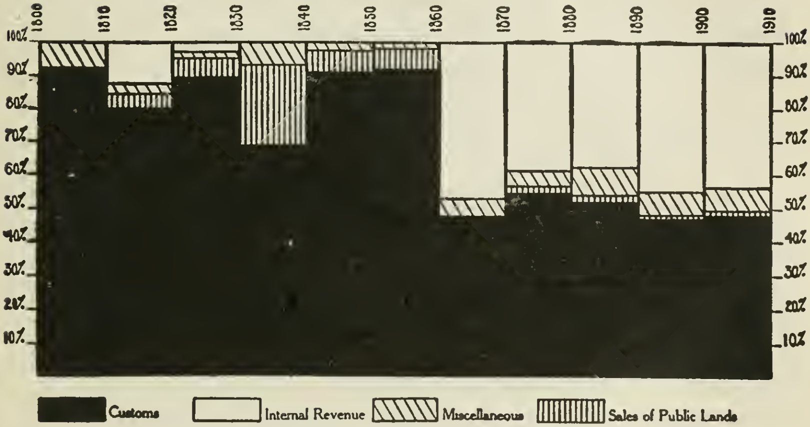
[1] Compiled from the *Statistical Abstract of the United States*, 1914, pp. 692–95.

245. PRINCIPAL SOURCES OF ORDINARY[1] FEDERAL REVENUES BY DECADES, 1800–1910



246. THE ADEQUACY OF THE CUSTOMS REVENUE SYSTEM[2]

In order to attain perfect adequacy the government needs must always be met by revenue both as to time and amount. Now under the ordinary circumstances, expenditure—the measure of government needs—is reasonably uniform from year to year. Income must, then, ordinarily be sufficient, but no more than sufficient, to satisfy this uniform demand. As, moreover, government demand rarely varies with the variation in industrial and commercial conditions, the revenue should also be derived from a stable source. Further, as the very nature of government operations constantly expose it to sudden and unforeseen expenditures, it follows that the public income should possess a high degree of flexibility. Sufficiency, stability, and flexibility are then the principles of fiscal adequacy. Definitely stated, sufficiency requires that the income be ordinarily commensurate with the demands of government; stability, that the income resist all forces, not of governmental origin, tending to make it vary; and flexibility, that it be capable of accommodation, with precision and rapidity, to changes in the government demand.

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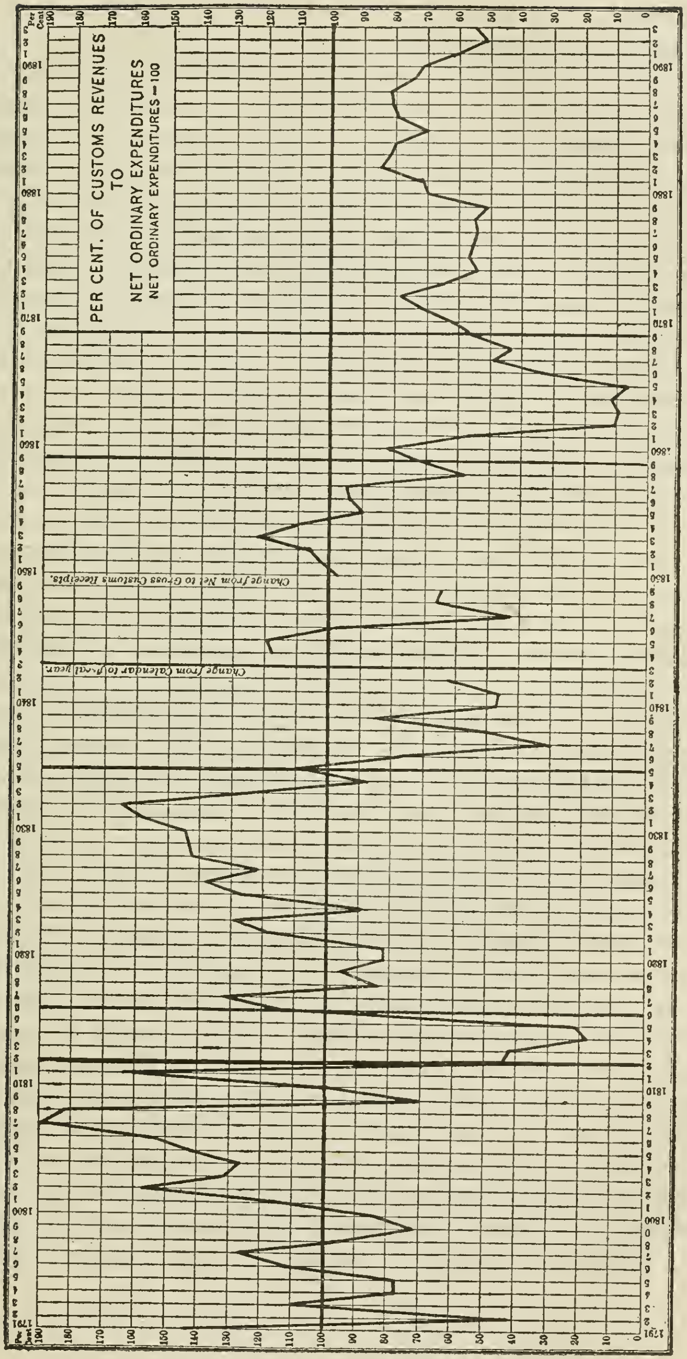
[1] ["Ordinary" revenues exclude receipts from loans, premiums, Treasury notes, and from the Post Office Department.—EDITORS.]

[2] Adapted from Robert F. Hoxie, "Adequacy of the Customs Revenue System," in *The Journal of Political Economy*, III, 42–72 (December, 1894).

[The detailed study of our financial history which forms part of the original article is here omitted. The following summary, used in connection with the chart, will make clear the conclusions reached by the author.—EDITORS.]

In the historical survey a variety of national, industrial, and commercial conditions have been encountered, yet the testimony throughout is strikingly in accord. In the first period examined, 1789–1812, while the nation was yet in its youth, and subject to strong foreign influences, the customs revenue, though on the whole abundant, was found to be uncertain to such an extent as rendered it an extremely precarious base on which to place the public finances. In the second period, 1812–16, under the stress of foreign war, the financial policy based upon the customs revenue system utterly broke down, as a result of the insufficiency and inelasticity of this form of income. The generally favorable conditions of the third period, 1816–35, while accompanied by a redundancy of revenue, did not insure the nation against great instability of income, resulting from transient industrial disturbances. The fourth period under examination, 1835–43, furnished a striking illustration of redundant customs revenue both as effect and cause of speculative expansion, and of the extreme instability of this form of revenue in time of acute commercial crisis. In the fifth period, 1843–60, under remarkably favorable general circumstances, the customs revenue, though on the whole abundant, still proved extremely sensitive to industrial and commercial disturbances. The Civil War period, 1860–69, served only to illustrate on a larger scale the defects of the system that were found to characterize it in the War of 1812. And finally, in the full vigor of the nation, and in time of average prosperity, 1769–93, this form of revenue was found to be alternately, according to the transient character of industrial and commercial conditions, greatly in excess


PER CENT. OF CUSTOMS REVENUES
TO
NET ORDINARY EXPENDITURES
NET ORDINARY EXPENDITURES = 100
Change from Net to Gross Customs Receipts.
Change from Calendar to fiscal year.
Per Cent
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
1791
1800
1810
1820
1830
1840
1850
1860
1870
1880
1890

of and far beneath the income necessary for the support of the financial operations of the government.

It will be seen that two factors are common to all these periods, viz., redundancy of revenue in time of commercial and industrial activity, and insufficiency and instability of revenue in time of stress and depression. On the whole it may be asserted, without fear of contradiction, that, throughout the history of the customs revenue system in the United States, the income from this source has been determined, not by government need but, almost wholly, by the character of temporary industrial and, more especially, temporary commercial conditions. As a consequence, in war the current public income has proved utterly insufficient, unstable, and inflexible; in peace it has shown itself extremely uncertain, fluctuating with every crisis and even with the changes in the policy and condition of foreign nations; in times of prosperity it has forced upon the treasury embarrassing surpluses, leading to extravagant expenditure, speculation, and crisis; in adversity it has left the treasury empty, necessitating the lavish use of the public credit. Judged purely by these results, as a main source of national income, customs duties must receive almost unqualified censure, compared with which the aspersions against it as a cause of individual injustice are trivial, and it should at once be discarded or essentially modified.

However, the foregoing discussion has not been exhaustive enough to justify the rendering of a general verdict. The questions, whether any peculiar circumstances have accompanied the employment of the customs revenue system in the United States and, if so, whether, and to what extent, these circumstances, non-inherent to the use of the customs revenue system, have contributed to its unfavorable showing, are still before us.

A review of the general conditions existing in the United States since customs duties first became the national revenue system reveals no peculiar circumstances operating against the successful employment of this source of public income. On the contrary, the general conditions have been remarkably favorable. Vigorous national growth, rapid industrial and commercial expansion, and great accumulation of wealth have characterized the period. The isolated position of the country and a conservative attitude toward government enterprises have combined to render national expenditures on the whole moderate. Customs duties, moreover, have been used to provide only for federal expenditures, the states being expressly forbidden by the Constitution from placing any duties on imports. And finally, the people, upon whose approval the success of any system of taxation under a democratic government must ultimately depend, have regarded indirect taxes with peculiar favor. The failure, then, of the customs revenue system to conform to the requirements of fiscal adequacy cannot be regarded as a result of the general conditions found in the United States in the past century.

This conclusion granted, there remains but one other possible source from which circumstances might arise unfavorable to the success of the system, viz., the financial operations of the government. Here, indeed, two peculiar and unsatisfactory features are found to exist. They are, first, a faulty financial organization; and secondly, a continued administration of the customs revenue system for economic rather than fiscal purposes. That these features of American finance have been responsible, to some extent at least, for the unfavorable showing of the customs revenue system in the United States cannot be questioned.

The particular feature of our financial organization that has unfavorably affected the customs revenue system is a division of powers and responsibilities in the construction of the national budget. There is in our government no single eye that surveys and no single responsible head that dominates the budgetary operations. The financial estimates are, indeed, prepared under the supervision of one person—the Secretary of the Treasury. But, this operation completed, his power and his responsibility pass over into the hands of the legislature. There is a positive line of separation between the executive and legislative departments. The Secretary of the Treasury may recommend, but he cannot enter the legislative chamber to explain or defend his position. Congress has unlimited power to add to, or take from, the estimates and to establish whatever taxation it may deem proper. The financial measures, therefore, in fact, come from the legislature itself. But even in the legislature, working by means of committees, expenditure and taxation are not considered together as forming one problem; and further, Congress is composed of many individuals, with widely differing financial abilities, influenced mainly by other than financial motives.

The second peculiar feature of American financial operations is the predominance of the protective idea in the shaping of the revenue system itself. The attempt to foster home industry by means of high duties on imported merchandise is not, of course, a novel feature of financial legislation, but in the United States fiscal considerations have been pretty systematically subordinated to the protective aim. This result has been due mainly to three causes: first, the faulty financial organization already discussed, which places fiscal management in the hands of men dominated, to a great extent, by political and economic motives; secondly, the great wealth of the country which, rendering public borrowing easy, and enabling the nation to recover rapidly from the effects of financial blunders, has veiled the real importance of fiscal considerations; and thirdly, the presence, during almost eighty years of our national history, of a public debt readily absorbing surplus revenues.

The discussion of the peculiar circumstances affecting the customs revenue system in the United States has, then, considerably modified the broad general conclusion drawn purely from the historical examination. But, though the scope of the general conclusion has been narrowed, and has been rendered also somewhat equivocal, this discussion serves only to confirm in all its force the practical conclusion that the customs revenue system should be either discarded or essentially modified. It has shown that not only is the revenue system in itself essentially faulty, but that the incidental causes of its inefficiency in the United States lie too deep in the structure of our government and in the character of our people to be easily eradicated. It will take much time to displace the financial methods sanctioned by a century of use, and still longer to convince the people that the tariff is not essentially bound up with the protective policy. It may be assumed, then, that the results to be derived from the continued use of this revenue system will be as unsatisfactory in the future as in the past. But the effect upon the prosperity of the nation cannot but be even more disastrous. As we approach European conditions, industrial enterprise becomes more sensitive, and our ability to recover rapidly and easily from the effects of financial blunders grows less. It is imperative that the national revenue system in itself be made more flexible and more stable. It is for us to consider carefully what measures—whether the introduction of the income tax, or the extension of the internal revenue duties—will bring about these results.

247. SOME GENERAL DIFFICULTIES IN OUR STATE SYSTEMS OF TAXATION[1]

What, then, are the chief difficulties in our tax system which are coming more and more to be recognized everywhere throughout the length and breadth of the land? I should sum them up under eight heads.

First and foremost is the breakdown of the general property tax, which is almost everywhere still the chief reliance of state and local government. The general property tax works well only amid most primitive economic conditions for which alone it was calculated. Almost everywhere, for reasons which it is unnecessary here to recapitulate, and which it is utterly impossible to prevent, personalty is slipping from under. The administration of the general property tax is everywhere attended with increasing difficulty, and in our large industrial centers it has become, to use the words of a recent tax report, "a howling farce." Everywhere, north and south, east and west, although in varying degree, comes the cry that the attempt to enforce the general property tax, whether by listing bills or tax ferrets, by oaths or by inquisitors, is doing much to force upon the average citizen habits of falsehood and corruption.

Second, a growing lack of equality in tax burdens, not only as between classes in the community, but as between individuals of the same class. Where land, for instance, is assessed at 20 per cent of its value in certain counties, and at 80 per cent or 100 per cent in other counties, it is obvious that the contribution to the state tax is grossly unequal and unfair.

Third, the application to general purposes of what was intended to be only a local revenue. All direct taxation was originally local in character, and the assessment of property for local taxation was at the outset a comparatively simple matter. When the need for state revenues made itself felt, it was obviously expedient to tack on to this local taxation a quota for general purposes. But with the great development of state functions, and with the breakdown of the local barriers of commerce and industry, what was originally equal soon turned into inequality, and the attempt to fetter interlocal or even interstate business conditions by the bonds of purely local assessment has proved to be a fruitful source of difficulty.

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[1] From E. R. A. Seligman, "The Separation of State and Local Revenues," in *State and Local Taxation*, Addresses and Proceedings of the First National Conference of the National Tax Association (1907), pp. 486–89. The Macmillan Co., 1908.

Fourth, the failure to make modern corporations bear their fair share of taxation. The corporation is a growth of the last half century. It was unknown when the present framework of our tax system was established. The attempt to force the new wine into the old bottles is not only spoiling the wine, but cracking the bottles.

Fifth, the failure to secure adequate compensation from individuals and corporations alike for the franchises and privileges that are granted by the community. An earnest effort is being made at present throughout the length and breadth of the land to repair this defect. But with the historic system as it has come down to us in this country of estimating wealth in terms of property rather than as abroad, in terms of income, we have been plunged into the vortex of the assessment of franchises, and have thus been compelled to attack a problem which does not even exist in other parts of the world.

Sixth, the undue burden cast upon the farmer. Practically, this is the problem of taxation in many of our rural districts and in all agricultural communities where the failure of an adequate revenue system and of the readjustment of social resources makes it impossible to secure good schools or fairly decent roads without overburdening what is, after all, the chief source of American prosperity.

Seventh, the interference with business, due to the partial and spasmodic enforcement of antiquated laws. Witness the attempt in some states suddenly to levy the mortgage tax, as recently in New York, where the entire building industry was thrown into confusion; or the attempt in other states to enforce now this and now that kind of property tax on businesses which led to a change in the location of the business rather than to any increase of revenue. The harassing of the individual business or the fear of harassment is becoming less and less defensible in the delicately adjusted mechanism of modern business society. Over a century ago Alexander Hamilton, in his famous report on manufactures, stated this golden maxim: "All taxes which proceed according to the amount of capital supposed to be employed in a business are inevitably hurtful to industry and are particularly inimical to the success of manufacturing industry and ought carefully to be avoided by a government which desires to promote it. It is in vain that the evil may be endeavored to be mitigated by leaving it, in the first instance, in the option of the party to be taxed to declare the amount of his capital or profits."

Eighth, the failure to make great wealth contribute its due share. In former times, where property was fairly equally ditributed and conditions simple, inequalities in tax burdens were slight and unperceived. Before the huge aggregations of modern wealth, the crude tax machinery of earlier days stands impotent. And yet we hug ourselves with the delusion that all that is necessary is to patch up the old machinery, whereas what is really needed is to throw the old machinery on the scrap heap and to utilize entirely new and modern instruments and processes.

248. A SYSTEM OF STATE AND LOCAL TAXES AND THEIR APPORTIONMENT[1]

In few states, if in any, are the different grades of government so intimately related to one another as in Minnesota. Whatever may be thought about it as a matter of administration, this interrelation greatly complicates the problem of securing a consolidated statement showing the cost of all grades of government in Minnesota.

The financial relations between the state and other governmental units are especially complex, as will appear from the following tabular statement:

1. The state collects directly:
    - (1) Gross earnings taxes on railroads, express, freight, and telephone companies.
    - (2) Gross earnings taxes on interurban electric roads.
    - (3) Ad valorem taxes on telegraph and sleeping car companies.
    - (4) Two per cent of gross insurance premiums.
    - (5) Three cents per net registered ton of vessels navigating international waters.
    - (6) Mortgage registry taxes on property not subject to ad valorem taxation.
    - (7) A great variety of licenses[2] and fees.
    - (8) Payments for trespass on state lands.
    - (9) Purchase price of stumpage sold.
    - (10) Exploration fees and royalties on mineral leases.
    - (11) Inheritance taxes on property in Minnesota transferred by non-residents.

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[1] From the *Third Biennial Report of the Minnesota Tax Commission* (1912), pp. 248–51, 579–81.

[2] Including fishing licenses and non-resident hunting licenses.

2. The state receives from the United States:
    (1) Grants for state university.
    (2) Grants for soldiers' home.
    (3) Five per cent of cash land sales in Minnesota.

3. The state receives from the counties:
    (1) Inheritance taxes, except from non-residents.
    (2) All other state taxes, except as shown under paragraph 1.
    (3) Court forfeits.
    (4) Principal and interest for state lands.
    (5) Ninety per cent of hay and pasturage rentals.
    (6) Ninety per cent of resident hunting licenses.
    (7) Principal and interest for state loans, unless paid directly by district or municipality.

4. The state receives from all municipal corporations:
    (1) Two per cent of liquor licenses.[1]

5. The state pays to counties:
    (1) Half of the vessel taxes.
    (2) The state apportionment and special aids for schools.
    (3) Five cents per acre of state lands for school maintenance.
    (4) Certain grants for roads and bridges.
    (5) Bounties relating to wolves, horse thieves, and timber planting.
    (6) A proportionate share of gross earnings taxes from interurban electric roads for distribution to other civil units.
    (7) Ten per cent of inheritance taxes collected by same counties.

6. The state pays directly to cities and villages:
    (1) The two per cent tax on gross insurance premiums unless there is a duly organized firemen's relief association.
    (2) Two hundred and fifty dollars per company toward armory maintenance.

7. The state pays directly to firemen's relief associations (where properly organized):
    (1) The two per cent tax on gross insurance premiums.

8. The state pays directly to each company or battery furnishing site:
    (1) Ten thousand dollars for armory construction.

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[1] Laws 1907 c. 288, Sec. 19.

In addition to acting as collecting agent for the state, as indicated under paragraph 3 above, the county has most intimate financial relations with all local governmental units, as may be seen from the following summary:

9. The county receives from municipalities, except from cities of 10,000 or more population, 10 per cent of liquor licenses.
10. The county pays to townships:
    (1) All taxes levied for their use.
    (2) One-half of liquor licenses collected within such townships (all of such licenses in counties over 275,000 population).
    (3) Occasional grants for roads, bridges, etc.
11. The county pays to school districts:
    (1) State apportionment and aids for schools.
    (2) County apportionment for schools.
    (3) Local one mill and special school taxes.
12. The county pays to cities and villages:
    (1) All taxes levied for their use.
    (2) Many special assessments.
    (3) Occasional grants for roads and bridges, etc.
13. The local board of underwriters in each municipality also receives directly from foreign insurance companies 2 per cent of the gross premiums for maintenance of salvage corps.

The levying and collection of the property taxes serve to illustrate the complexity of the situation. The law provides that all taxes shall be levied or voted in specific amounts, and the rate per cent shall be determined from the amount of property as equalized by the tax commission each year, except such general taxes as may be definitely fixed by law.

Five different official bodies have to do with fixing the amount of the tax levy each year—the state, the county, the town, village or city, and the school district.

The state rate for general revenue purposes is determined by the legislature and may vary from year to year according to the needs of the state, the levy for such purpose this year being 1.9 mills. The total state levy this year for all purposes, including the one mill school tax, is 3.88 mills.

County taxes, except as otherwise provided in case of counties having more than 150,000 population, are levied by the county board at its meeting in July of each year, and are based upon an itemized statement of the estimated expenses for the ensuing year, which statement must be included in the published proceedings of the board.

City and village taxes are determined by the local authorities in accordance with the methods prescribed in their charters.

The amount of taxes to be raised for town purposes is determined by the voters at the annual town meeting.

School taxes, except in districts organized under special laws, are determined by the voters at the annual meeting.

The amounts of the different taxes so determined must be certified to the county auditor on or before October 10 of each year. The county auditor then computes the rate necessary to produce the required revenue and makes the levy accordingly.

There are, however, certain limitations on the amount of taxes that may be levied for different purposes in any one year.

Except where county commissioners, township supervisors, or corporate authorities of any city, town, village, or school district are authorized by special law to levy any tax, the amounts that may be levied are limited as follows:

Counties whose taxable valuation is $1,000,000 or more, may not levy taxes in excess of 5 mills for general revenue purposes, and counties having a less valuation not in excess of $5,000, or exceeding a rate of 1 per cent.

Town taxes for revenue purposes shall not exceed 2 mills where the valuation is $100,000 or more, nor more than $150 where the valuation is less than $100,000, and then not to exceed one-half of 1 per cent. But towns may levy taxes for roads and bridges not to exceed 10 mills on the dollar, and for support of poor not in excess of 5 mills on the dollar.

School districts, in addition to the general 1 mill tax, may levy a tax not in excess of 15 mills for support of schools and 1 per cent for erection of school houses.

THE COLLECTION OF PROPERTY TAXES

The county auditor computes the rate of levy necessary to produce the aggregate amount of money required by the four separate taxing authorities, and extends the tax against each description of land and each individual assessed for personal property.

The auditor makes a separate tax list for each taxing district of the county showing ownership and description of property, with columns for the valuation and for the various items of taxation included in the total.

The tax lists are turned over to the county treasurer by the auditor on or before the first Monday in January of each year, and the treasurer proceeds to receive and collect the taxes therein levied.

On receiving the tax lists from the auditor the treasurer, if directed by the county board, is required to give three weeks' published notice in a newspaper, specifying the rate of taxation for all purposes, and the amounts raised for each specific purpose. He may also be directed by the county board to visit different places in the county for the purpose of receiving taxes.

Personal property taxes become due and payable on and after the delivery of the tax lists to the treasurer, and if not paid before March 1, they become delinquent and a penalty of 10 per cent is added.

Taxes on real estate also become due and payable on delivery of the tax lists to the county treasurer, and if not paid before June 1, a penalty of 10 per cent is added; and if such taxes remain unpaid until January 1, following, an additional penalty of 5 per cent is added.

The law; however, permits the payment of real estate taxes in two installments—one-half prior to June 1, and the remaining one-half any time prior to November 1 provided that the taxes charged against any tract or lot of land exceed one dollar.

Upon payment of any tax, the treasurer is required to issue his receipt therefor, showing the name of the person, the amount and date of payment, and the land, lot, or other property on which the tax was levied, and the year or years for which such levy was made.

Personal property taxes are assessed against the person and not against the property, while real estate taxes are assessed against the property and not against the person. If personal property taxes become delinquent collection is enforced against the person assessed by distress and sale of any personal property he may own, while the collection of delinquent real estate taxes is enforced by the sale of the property assessed.

249. THE GENERAL PROPERTY TAX[1]

Most of our states have at various times made spasmodic efforts to enforce the general property tax. In no other state has there been a more continuous and comprehensive effort to secure the return for taxation of all personal property than in Ohio.

The constitution of Ohio adopted in 1851 required the taxation of all real and personal property by a uniform rule, at its true value in money. The system devised for the enforcement of this provision was thus described by the Special Tax Commission appointed in 1893:

"We have in Ohio the most efficient and minute scheme of bringing upon the duplicate [i.e., assessment roll] all of these classes of property, which has been devised in any state. Every citizen is bound under oath to make a complete return of his property. The list which he returns is to embrace all forms of personal property; if he declines to make the oath required by law, a penalty of 50 per cent is added. The statutes also provide a method by which the auditor may bring before him the citizen and examine him, if he suspect that the return is not a complete one. In addition to all this, the county commissioners have authority to make a contract with such persons as may give information which will result in personal property being placed upon the duplicate. These persons are rewarded with a large proportion of the amount recovered through their efforts. (In the counties containing the cities of Cincinnati and Cleveland, 25 per cent; in other counties, 20 per cent)."

Bearing in mind these extremely stringent provisions of the law, it remains to determine how far they have proved effective. It is needless to quote in detail from the pages of figures presented by the Commission to show the utter failure of these measures to reach the personal property of the state. A few citations should suffice:

"In 1866 the valuation of the city of Cincinnati was: realty, $66,454,602; personalty, $67,218,101; the personal property was greater than the amount of real estate by $800,000."

"In 1892, twenty-five years later, the real estate of Cincinnati had increased to $144,208,810, while the personal property had decreased to $44,735,670."

"The amount of money returned for taxation in the state in 1866 was nearly $3,000,000 more than it is to-day (1893)."

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[1] Adapted from the report of a committee of the International Tax Association on "The Causes of the Failure of the General Property Tax," in *State and Local Taxation*, Addresses and Proceedings of the Fourth International Conference (1910), pp. 301–4. International Tax Association, 1911.

> "In 1866 the amount of money returned for taxation in Hamilton county (containing Cincinnati) was nearly five times what it was in 1892; the amount of credits was nearly double what it is today. The amount of bonds and stocks was $200,000 more than it was in 1892."

These were the fiscal results. The social results are thus summarized by the Commission:

> "The system as it is actually administered results in debauching the moral sense. It is a school of perjury. It sends large amounts of property into hiding. It drives capital in large quantities from the state. Worst of all, it imposes unjust burdens upon various classes in the community. . . . This inequality of taxes weighs most heavily upon those whose thrift and prudence have resulted in affording to themselves or their children a competence. It is evidence that this burden rests with peculiar force upon those persons whose scrupulous honesty induces them to make full and complete returns of all their property."

Notwithstanding this severe condemnation of the system and the exhibition of its failure, practically no legislative relief was secured. The same conditions continued. In 1906 another Commission was appointed. About that time the Supreme Court declared the "tax inquisitor" law unconstitutional, but this had no effect on the administration of the law in the period covered by the investigation.

The report of this Commission, submitted in 1908, shows the same failure in administration as the report of the Commission of 1893. The fiscal results can be dismissed briefly:

> "The value of all credits returned was $34,000,000 less in 1906 than it was in 1890, and $16,000,000 less than it was in 1870. The value of all stocks and bonds was $2,575,000 less in 1906 than it was in 1880, and the value of all intangible property, including moneys, credits, stocks and bonds, as returned for taxation, was nearly $8,000,000 less in 1906 than it was in 1890."

Similar examples are given in regard to other classes of personal property. To quote the totals, or the ratio of personal property to real, would be misleading, because under the Ohio law all of the property of railroads, and of some other corporations, including their real estate, is returned as personal property. For this reason the assertion sometimes made that the listing system of Ohio must be successful because the reports show that personal property amounts to some 30 per cent of the total assessment, is based upon a misunderstanding.

This Ohio report of 1908 continues:

> "The widespread concealment of intangible property, increasing in amount year by year, is the most convincing proof of the failure of the general property tax. It shows that after more than fifty years of experience, with all conceivable methods in the way of inquisitor laws, severe penalties, and criminal statutes, designed to force the owners of moneys and credits, stocks and bonds, to put their holdings upon the tax duplicate, not only is the percentage of such property less than ever before, but public sentiment seems to be more and more openly approving an evasion of the law. Such a condition of affairs is so manifestly wrong and so inimical to good government that its longer continuance is a grave injury to the state."

It is significant that this Commission, whose members had first-hand knowledge of the conditions resulting from stringent attempts to enforce the general property tax, do not advise a stricter administration, or even a continuance of the existing system. Instead, they make the following recommendations:

> "No just or satisfactory system can be established in this state without removing the constitutional obstacles that now bar the way. The general property tax has long ago served its day. . . . . The reports of State Tax Commissions within the last ten years disclose no instance in which the general property tax has been approved and few in which it has not been expressly condemned. . . . . We recommend an amendment to the constitution of Ohio abolishing the general property tax now required, and giving the legislature a freer hand to deal with such subjects as franchises, stocks, bonds, cash, mortgages, and other intangible property."

Your Committee has quoted at this length from the Ohio reports because that state is recognized to have made as earnest and thorough efforts to enforce the tax by severe administration as any of the states. The statistics from other states that have listing systems show practically the same results.

250. THE TAXATION OF INTANGIBLE PERSONALTY

I. THE MINNESOTA PLAN[1]

It is generally conceded that the value of money and credits owned in the state far exceeds the value of tangible personal property, yet prior to 1911 the assessed value of such property never in any year exceeded 29 per cent of the total personal property assessment of the state.

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[1] Adapted from the *Third Biennial Report of the Minnesota Tax Commission* (1912), pp. 46-57.

In 1880 money and credits represented 22.6 per cent of our total personal property assessment. In 1890 it had increased to 27.8 per cent of the total, but in the next ten years, notwithstanding the rapid growth of the state in wealth and population, the trend was downward, until, in 1900, it represented but 22.5 per cent of the total. During the next decade it began to show some increase, noticeably so after the organization of the tax commission in 1907, and in 1910 it reached the highwater mark under the old system, the amount that year being 29 per cent of the total. Realizing our failure under the old system, after more than half a century of unsuccessful effort to get certain forms of intangible personal property on the tax rolls, the legislature in 1911 enacted a law providing for the separate listing of money and certain classes of credits, and imposing a flat tax rate of three mills on the dollar in lieu of all other taxes. In 1911, the first year of the three mill tax rate, the assessed value of money and credits jumped to 48.5 per cent of the total, while this year it is 50.8 per cent of the total personal property assessment of the state.

In 1910 the assessed value of money and credits in the classes now included in the three mill tax law amounted to $13,919,806. In 1911, the first year under the new law, the amount returned for taxation was $115,481,807, an increase of 730 per cent over the preceding year. The total assessment of money and credits this year amounts to $135,369,314, being an increase of $19,887,507, or 17.2 per cent over 1911, and 873 per cent over 1910. Based on the population of 1910, the per capita assessment of this class of property was $6.70 in 1910, $55.63 in 1911, and $65.22 in 1912. Compared with bank deposits, the assessment of 1910 represented only 4.2 per cent of such deposits, while in 1911, it equaled 33.8 per cent, and in 1912, 42.4 per cent of bank deposits.

That the assessment is much more widely, and hence much more equitably distributed among the people is shown by the large increase in the number of people assessed under the new law. While no exact data is available for 1910, it is estimated that the number of people assessed for this class of property in that year did not exceed 6,200. In 1911 the number assessed was 41,439, and in 1912, the present year, 50,564 assessments of such property have been reported, a gain of 9,125, or 22 per cent over the preceding year.

While it is not claimed that all intangible property subject to taxation under the new law has been placed on the assessment rolls, the proportion that now escapes taxation is much less than it was when we attempted to tax such property with the same machinery and on the same basis as other forms of property. In addition, it will not be denied that the tax burden on this class of property is much more widely, as well as much more equitably and justly, distributed than it was under the old system.

While it can scarcely be claimed that two years afford sufficient time to demonstrate the success or failure of any radical departure from methods of taxation that have grown hoary with age, yet our brief experience in Minnesota with the three mill tax on money and credits justifies us in the belief that we have taken a decided step in advance. Men differ as to the wisdom of taxing property of this nature at all, but there is no difference in opinion that a burdensome or confiscatory tax drives such property into concealment. Experience in our own and every other state has demonstrated that when a tax rate consumes more than 10 per cent of the income from this class of property it will not be voluntarily listed for taxation. The average tax rate in Minnesota this year is nearly 30 mills. With such a rate consuming, as it would, from 40 to 60 per cent of the income from invested credits, it would be folly to hope to reach more than a fraction of such property for purposes of taxation under the old system.

It was for this reason that the legislature passed the three mill tax law. We believe it is a decided improvement over the old method of taxing money and credits, because it is more equitable and will eventually produce more revenue than the old system did. Above all, it makes for good citizenship, because it reduces the premium on dishonesty, and permits men to be truthful in their tax statements, without the fear of having their property confiscated in excessive tax rates.

II. THE RESULTS IN PENNSYLVANIA, CONNECTICUT, AND MARYLAND[1]

The effect of reducing the rate on intangible personalty and providing improved administrative machinery in Pennsylvania is shown in an increase in assessments from $155,107,000 in 1885 to $390,750,000 in 1886, or 152 per cent; at the same time revenue increased from $610,608 to $1,172,250, or 92 per cent. The average increase for the five years following (1887–1891) was 57 per cent in both assessments and receipts. In 1892 the rate was changed from $3 to $4. During the five years following (1892–1896) the average assessment increased to $839,565,000, or 37 per cent, and revenue increased to $3,358,260, or 82 per cent. In 1910 assessments amounted to $1,741,865,000 and revenue to $6,967,460, an increase in each case of 107 per cent over the yearly average for the 1892–1896 period.

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[1] Adapted from the *Report of the United States Commissioner of Corporations on Taxation of Corporations*, Part IV (1912), pp. 14–15.

The Connecticut plan gives the option of paying locally the general-property tax at the regular rates. Amounts assessed and paid locally are shown separately from those assessed and paid to the state at the uniform rate. The percentage of increase is, however, based on the total of both. The low uniform rate was adopted by the state of Connecticut in 1890. For the following seven-year period (1890–1897) the average yearly assessments increased over the assessments for 1889 from $12,982,000 to $27,836,000, or 114 per cent, while revenue decreased from $162,288 to $133,107, or 18 per cent. During 1898 the uniform rate was raised to $4. This resulted in decreasing assessments 14 per cent and decreasing revenue 2 per cent. This decrease, however, was overcome, and in 1910 assessments amounted to more than $45,000,000, an increase over 1898 of 89 per cent, and revenue to approximately $230,000, or an increase of 76 per cent during this period.

Figures for the entire state of Maryland are not available, and those [which are here given] are for the city of Baltimore only. The effect of the inauguration of the low rate in 1897 was to increase assessments from $6,000,000 to $58,704,000, or 878 per cent, and revenue from $130,650 to $280,312, or 115 per cent over the previous year. Between 1897 and 1911 assessments increased to $165,834,000, or 182 per cent, and revenue increased to $862,337, or 208 per cent.

251. TAXATION OF CORPORATIONS[1]

I. SOME OF THE ISSUES IN THE TAXATION OF CORPORATIONS

(1) Should taxation be intentionally so framed as to lay especial burdens upon corporations? On the one hand, it can be contended

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[1] Adapted from the *Report of the Commissioner of Corporations on Taxation of Corporations*, Part II (1910), pp. 9–10, 2. In Part IV of the report the following classes of taxes are mentioned:

that corporations are merely artificial creatures of the states and that they should pay well for the exceptional privileges enjoyed by them; on the other hand, it can be contended that corporations are essential to business as at present conducted, and that, by reason of the comparative ease with which their investments and operations can be ascertained, they actually bear a heavier burden of taxation even when no theoretical discrimination is made against them.

(2) Should shareholders and bondholders pay taxes in addition to the taxes paid by the corporation on the corporate property? On the one hand, it can be contended that the corporation is an artificial entity distinct from the persons interested in it; on the other hand, it can be contended that the corporation and the persons interested in it are identical in fact, and that to tax the corporation and those persons simultaneously is to burden the same persons twice.

(3) Is it inequitable to tax either a corporation or its stockholders on the basis of the market value of the stock? On the one hand, it can be contended that thus the tax is based both upon property and upon expectation, and that in the case of natural persons expectation is never taxed; on the other hand, it can be contended that corporate organization facilitates the capitalization and present realization, in a sense, of merely expected profits, and that in recognition of the advantage thus conferred by the state it is only fair to exact a special burden.

(4) Should a state permit outside corporations to do business within its borders upon terms more favorable than those exacted from the corporations of the state itself? On the one hand, it

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1. General property tax
    (*a*) on all property
    (*b*) on property used in the business
    (*c*) on property not used in the business
    (*d*) on property and also on franchise value
2. Special franchise tax (franchise valued as property)
3. Capital stock tax
4. Gross earnings and gross receipts taxes
5. Mileage tax
6. Corporate-excess tax
7. Tax on corporate loans
8. Lump sum tax
9. State business-license tax
10. Income tax

can be contended that comity requires the free admission of corporations from other states; on the other hand, it can be contended that a corporation is in legal theory existent only within the boundaries of the sovereignty creating it, and that at any rate it is inexpedient and unfair to admit corporations upon any other basis than the bearing of at least as heavy burdens as are imposed upon those chartered by the State itself.

(5) Should the states differ from one another in their systems of corporate taxation? On the one hand, it can be contended that the circumstances of the several states vary; on the other hand, it can be contended that the experiments now made in the several states may be expected to show which system of corporate taxation is the best, and that at any rate uniformity is desirable in order to prevent capital from being excessively concentrated in a few states.

II. SOME RESULTS OF THE TAXATION OF CORPORATIONS

The general results of the study of corporate taxation in New England and the Middle Atlantic states are these:

(1) Each state has a system of its own, and as yet there is no marked tendency toward uniformity.

(2) No state at present treats all corporations in exactly the same way, and as between the several sorts of corporations the tendency still seems to be toward further differentiation.

(3) In most of the states changes are so frequent as to indicate that as yet a satisfactory and ultimate method has not been discovered.

(4) The income from corporate taxation is almost invariably increasing, partly because of increase in the number and size of corporations and partly because of changes in methods of taxation.

(5) There is a tendency toward separating sources of local revenue from sources of state revenue, and the taxation of corporations tends to become a source of state revenue only, with the exception that corporation lands, other than rights of way, are still usually taxed like the lands of individuals.

(6) The taxation of corporations is chiefly administered by state officials.

PERCENTAGE OF STATE TAXES (AS DISTINGUISHED FROM LOCAL TAXES) CONTRIBUTED BY CERTAIN SOURCES OF TAXATION FOR 1910[1]

States	Corporation tax	General property tax	Inheritance tax	Liquor tax	Miscellaneous tax receipts	Total state taxes
NEW ENGLAND GROUP						
Maine	54	34	6	5	1	100
New Hampshire	39	47	9	......	5	100
Vermont	82	....	8	5	5	100
Massachusetts	41	41	12	6	....	100
Rhode Island	46	41	......	8	5	100
Connecticut	71	9	9	......	11	100
MIDDLE ATLANTIC GROUP						
New York	29	....	23	27	21*	100
New Jersey	91	....	8	......	1	100
Pennsylvania	71	5	7	7	10	100
Delaware	67	....	1	......	32	100
Maryland	33	34	8	12	13	100
District of Columbia	16*	74	......	8	2	100
EASTERN CENTRAL GROUP						
Ohio	54*	25	......	20	1	100
Indiana	19*	81	......	......	....	100
Illinois	34*	58	6	......	2	100
Michigan	45	52	2	......	1	100
Wisconsin	71	22	5	......	2	100
WESTERN CENTRAL GROUP						
Minnesota	66	27	6	1	....	100
North Dakota	24*	76	......	......	....	100
South Dakota	18*	81	......	......	1	100
Iowa	26*	62	7	......	5	100
Nebraska	25*	74	......	......	1	100
Kansas	31*	69	......	......	....	100
Missouri	20*	43	6	30	1	100

* Includes state's share of general property tax collected locally from certain corporations. (See table of financial results under each state.) With the exception of the District of Columbia, as previously noted, it is impossible, practically, to ascertain or estimate from the information available the amount thus received from corporations in the states included in this table.

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[1] From the *Report of the Commissioner of Corporations on Taxation of Corporations*, Part IV (1912), p. 5.

PERCENTAGE OF STATE TAXES (AS DISTINGUISHED FROM LOCAL TAXES) CONTRIBUTED BY CERTAIN CLASSES OF CORPORATIONS FOR 1910[1]

States	Railroad companies	Car companies	Express companies	Telegraph and telephone companies	Manufacturing companies	Insurance companies	Financial companies	Miscellaneous companies	Corporation fees	Total taxes and fees from corporations
NEW ENGLAND GROUP										
Maine	38	......	2	5	......	12	22	......	21	100
New Hampshire	78	......	1	5	......	16	......	......	......	100
Vermont	27	......	1	2	......	14	52	......	4	100
Massachusetts	12	......	......	8	10	20	42	6	2	100
Rhode Island	10	......	......	2	......	33	52	......	3	100
Connecticut	52	......	......	3	......	17	18	5	5	100
MIDDLE ATLANTIC GROUP										
New York	22	......	1	4	......	18	1	49	5	100
New Jersey	55	......	......	......	......	3	......	39	3	100
Pennsylvania†	41	......	......	2	9	10	13	18	7	100
Delaware	34	......	1	3	......	20	......	30	12	100
Maryland	46	......	......	4	5	22	8	13	2	100
District of Columbia	37	......	......	7	23	9	23	1	......	100
EASTERN CENTRAL GROUP										
Ohio	38	......	1	2	6	22	3	23	5	100
Indiana	51	1	......	3	......	33	1	3	8	100
Illinois	66	......	......	......	......	16	......	4	14	100
Michigan	82	1	1	7	......	9	......	......	......	100
Wisconsin	78	......	......	2	......	18	......	......	2	100
WESTERN CENTRAL GROUP										
Minnesota	83	......	1	4	......	8	......	2	2	100
North Dakota	54	......	1	2	......	36	......	......	7	100
South Dakota	44	......	1	2	......	46	......	......	7	100
Iowa	29	1	......	2	......	46	2	......	20	100
Nebraska	46	......	......	1	......	20	2	8	23	100
Kansas	50	2	1	1	......	29	3	9	5	100
Missouri	26	1	2	2	......	36	3	14	16	100

† The Pennsylvania figures in this table are taken from State Auditor's Report, 1910.

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[1] From the *Report of the Commissioner of Corporations on Taxation of Corporations*, Part IV (1912), pp. 7–8.

252. THE INHERITANCE TAX[1]

To Americans of the last generation the inheritance tax was a fiscal curiosity. It had been adopted by Pennsylvania in 1826, and subsequently had found its way into a few other states. But most of these early experiments came to untimely ends, and a "legacy tax" enacted by the national government in 1862 met with a similar fate when internal taxation was reduced after the Civil War. Prior to 1885 the net results of all efforts to domesticate this tax in the United States had been that two states, Pennsylvania and Maryland, were then levying light duties upon collateral inheritances. In that year, however, New York established a tax upon collateral inheritances, which, in 1891, was extended to direct inheritances of personal property; and her example was soon followed by other states. In 1894 Pennsylvania and Maryland had collected $663,000 from inheritance taxes; in 1892 six states collected $3,107,000. Ten years later twenty-eight states drew $7,138,000 of revenue from this source, and in 1905 thirty states received approximately $10,600,000. At the present moment the inheritance tax is found in not less than thirty-four states, and in nineteen of these it applies to direct inheritance as well as to collateral. Manifestly the taxation of inheritance is no longer a debatable issue, but must be accepted as an accomplished fact of American finance.

In considering the proper function of the inheritance tax we are brought directly to the question whether it should be employed solely for the purpose of raising revenue, or should be used as a means of regulating the distribution of wealth. In the laws now on the statute books of the several states the controlling purpose is, clearly, to raise revenue. Upon direct inheritance the rates range usually from 1 to 3 per cent, and in no case exceed 5 per cent; while upon collateral they seldom rise above 6 per cent. These figures are not higher than can be justified on purely financial grounds; in fact, in many states the rates are less than the experience of other countries shows that the legislature might well impose. They yield considerable revenue which can be collected with reasonable certainty, slight expense and comparatively little hardship to taxpayers. Upon estates of the largest size passing to distant heirs or strangers in blood, the tax sometimes rises to 15 or 20 per cent; but occasion seldom offers for the application of such high rates, and even then the limits set by sound principles of finance are not overstepped. A tax of 20 per cent upon property in excess of $500,000 passing to unknown relatives or strangers in blood, may appear startling at first thought, yet it may be defensible from the purely fiscal point of view, and will exert little influence upon the distribution of wealth in the United States. Upon most inheritances, collateral as well as direct, we are now levying from 1 to 5 per cent. On the theory that the purpose of the laws is to raise revenue these rates can be readily understood; they are altogether ridiculous, if we assume that the purpose is to modify perceptibly the distribution of wealth.

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[1] Adapted from C. J. Bullock, "The Position of the Inheritance Tax in American Taxation," in *State and Local Taxation*, Addresses and Proceedings of the First National Conference of the National Tax Association (1907), pp. 231–40. The Macmillan Co., 1908.

If swollen fortunes are to be reduced to reasonable size by inheritance taxation, the rate imposed upon all successions, direct even more than collateral, must be raised to a very high figure. From 2 or 3 per cent the tax levied upon large estates must advance to 10, 20, or 30 per cent, and perhaps more, before it can have the desired effect; and it must apply to property passing from husband to wife, father to child, or brother to sister. Now it is not to be supposed that all the states will be convinced simultaneously that such radical action is necessary; and if some refuse to follow the lead of the others, it is easy to see that there will ensue, and that speedily, a fearful congestion of swollen fortunes in a few unprogressive but prosperous states. He who doubts this prediction has only to inquire in what states the corporations are now chartered from which the "undesirable" fortunes have been mainly drawn. Of a certainty, then, the work is too large for the several states, and calls for the interposition of the national government.

What now shall be said of the main proposal? Is it desirable to employ the inheritance tax as an instrument for reducing swollen fortunes? I am constrained to believe that the inheritance tax is not the instrument to employ. For, in the first place, a retributive inheritance tax could only remedy some of the ill effects of undue concentration of wealth, and would in no way remove the causes. In social therapeutics, as in medical, it is sound policy to aim at causes rather than effects; and this case is no exception to the rule.

. . . . If for a single generation we punish commercial crime, extirpate social brigandage, and abolish privilege resting upon unwise legislation, we shall probably find that the question of the distribution of wealth will have settled itself.

A second objection to the proposed employment of the inheritance tax is that it would punish the just man with the unjust, and would check legitimate ambition and business enterprises. For your tax law must be impersonal, and cannot be so drawn that it will apply to "*tainted*" fortunes only. You must enact that *all* fortunes in excess of a stated sum shall be liable to a tax of 10, 20, 50 per cent; and thus you punish the innocent as well as the guilty. You might, indeed, proceed upon the principle that no man can honestly acquire more than one, or five, or ten million dollars; that theory is sometimes propounded by persons who desire to regulate the distribution of wealth. But in that case you would be bound logically to levy a tax of 100 per cent upon all sums which wealthy malefactors accumulate in excess of the stated amount; otherwise you would refuse to recover for the use of all the people some portion of the property of which they had been despoiled, and would virtually connive at the transfer of stolen goods. If this theory proves more than is usually anticipated or intended, one, and only one, other may be adopted. We may proceed upon the theory that although a man may acquire honestly more than one, or ten, or twenty million dollars, it is undesirable that he should be permitted to transmit such a sum to his heirs. Not unnaturally, this idea appeals strongly to those who believe that no small part of such swollen fortunes is likely to have been gained by methods which, if within the letter of the law, were contrary to sound morals and sound public policy. Without doubt it is upon such considerations that most advocates of confiscatory inheritance taxes would rest their case.

But even in this form the proposal is open to the objection that it contemplates the establishment of a hard and fast rule which must be the same for fortunes honestly acquired and for those gained through craft, deceit or oppression.

A third objection is that taxation, even the taxation of inheritance, is usually a clumsy agency for social reform, and ordinarily accomplishes either more or less than is desired. Our present moderate taxes of from 1 to 3 per cent upon direct inheritances are collected with considerable success, since it is found that the average man will not exert himself to escape them. He accepts them as a not unreasonable method of collecting revenue, and does not look upon the probate court as an agency for confiscating his fortune. But no experience of what wealthy men do under our present laws can justify us in concluding that they will not make every possible effort to escape a tax of 20 or 30 per cent, and no one knows how much more. For any state to collect such a tax would be substantially an impossibility, except in the case of landed property. A federal tax would not be so easy to escape, but it is certain that various methods of evasion could and would be devised.

For under modern conditions capital knows no national boundaries, and when facing a confiscatory tax is generally free to migrate. Many capitalists, too, and those the largest, whom the social reformer desires most to reach, would choose expatriation rather than surrender, even at death, one-third or one-half of their fortune. Transfers of property long before death would become exceedingly common, and these could be controlled only by a universal system of taxes on transfers, than which nothing could be a greater impediment to legitimate business. . . . . Can we doubt that a confiscatory federal tax would be subject to wholesale evasion, and that the very persons the reformer desires to reach would be best able to profit thereby?

The constitutional aspects of an attempt to reduce large fortunes I am compelled to pass without remarks. If they have ever been considered by advocates of the plan, they have evidently been dismissed without serious study, perhaps as trifles about which the law does not care. I am unable, also, to consider the question whether, if the rights of inheritance and bequest are to be restricted, we would not better proceed by modifying the general laws relating to the subject, rather than educate men in the belief that they possess comparative freedom of testamentary bequest, and then undertake by taxation to prevent them from exercising that right. I venture, however, to express the opinion that, if this step is ever to be taken, the simpler, surer, yes, the honester, plan is to modify the laws of inheritance and bequest. Unless we are ready to do that, let us use the inheritance tax merely for the purpose of collecting a reasonable revenue from property passing in accordance with law.

It remains to consider the position of the inheritance tax in our American system of taxation. Should it be a state tax or a federal tax? Should it, possibly, be levied by both federal and state governments?

From the very beginning the federal government has ordinarily contrived to defray its expenses by indirect taxes, and it has today no occasion to appropriate any branches of taxation employed by the several states. True, national expenditures have increased in recent years, and are still rising. True, also, increased revenues may be needed before long. But even when that time comes there will be no need of taxing inheritances. By raising the taxes on beer and tobacco to the rates enforced during the Spanish War, and by reintroducing a moderate duty upon tea, not less than one hundred millions of additional revenue can be had without injury to business or serious burden to taxpayers. In this country, unlike Germany, only the state and local governments are seriously vexed with problems of revenue. From some branches of taxation they are debarred by constitutional restraints; from others, by economic; while their expenditures far exceed the total federal outlay, and bid fair to increase still more rapidly. Their taxes fall heavily upon property and business, and are usually so high that it is unwise, even if possible, to increase them. All the revenue that can properly be raised by the taxation of inheritances is sorely needed by the several states, and of right should be left to them. For the federal government to enter this field would be worse than a blunder, it would be a fiscal crime.

For financial reasons, therefore, I hold that the inheritance tax should be reserved for the several states. For economic and social reasons, I maintain, its function should be to raise revenue, and not to reshape the distribution of wealth. Upon both financial and economic grounds, I contend, we should not employ the tax in hazardous schemes for the regulation of fortunes.

253. INCOME TAXES

a) THE FEDERAL INCOME TAX

The Sixteenth Amendment to the Constitution, proclaimed in February, 1913, permitted the federal government to levy an income tax without apportionment among the states on the basis of population.

The tariff act of October, 1913, included an income tax with the following provisions:

The tax applies to all citizens of the United States, resident or non-resident, resident aliens as to all income, and non-resident aliens as to the income derived from property owned or business carried on in the United States.

Individuals are taxed on the income derived from any source (except the value of property acquired by gift or descent) but are allowed the following deductions: (1) expenses of carrying on their business, excluding personal living or family expenses; (2) interest paid on indebtedness; (3) taxes, except special assessments; (4) business losses of the year; (5) bad debts written off; (6) reasonable allowance for depreciation; (7) dividends on the stock of a corporation paying an income tax; (8) income, the tax on which has been deducted at the source; (9) $3,000 if single; and $4,000 if the individual is married and lives with husband or wife; (10) interest received on the obligations of a state or political subdivision thereof or of the United States or its possessions; (11) compensation of all officers and employees of a state or any political subdivision thereof.

The normal tax of 1 per cent is levied on this annual income, and on incomes in excess of $20,000 an additional annual tax must be paid, as follows: 1 per cent on the amount by which the total net income exceeds $20,000 but does not exceed $50,000; 2 per cent on the amount over $50,000 but not over $75,000; 3 per cent on the amount over $75,000 but not over $100,000; 4 per cent on the amount over $100,000 but not over $250,000; 5 per cent on the amount over $250,000 but not over $500,000; and 6 per cent on the excess above $500,000.

The individual's statement of income is due on March 1; he is notified of the amount of his tax by June 1, and the tax must be paid by June 30 of each year.

The tax is deducted at the source: (1) by persons or companies acting as lessees, mortgagors, trustees, employers, etc., whenever interest, rent, salaries, wages, or other gains or profits are paid by them to any one person to an amount exceeding $3,000 a year; (2) by corporations or associations paying interest on their bonds, mortgages, or similar obligations even if the payment does not exceed $3,000 a year, and from coupons or checks in payment of bonds or other obligations or dividends upon the stock of foreign corporations where the coupons or checks are not payable within the United States. Any person whose income is thus deducted at the source who may be entitled to any exemption must file a written claim therefor.

All corporations, joint stock companies, and associations organized in the United States, not including partnerships, and (as to the proportion of their business done in the United States) foreign corporations, are taxable upon their entire net income arising or accruing from all sources. Certain classes of corporations are exempted from this tax, including labor, agricultural, or horticultural organizations, fraternal beneficiary societies, charitable, scientific, or educational institutions, etc. The tax is 1 per cent of the entire net income, subject to deductions for ordinary and necessary expenses of maintenance and operation, net losses sustained, reasonable depreciation, taxes, and interest on indebtedness to an amount not exceeding one-half the sum of the interest-bearing indebtedness and the paid-up capital stock of the company. Returns which must show the amount of these various items may be made for either the calendar year or the fiscal year of the corporation.

b) THE INCOME TAX IN WISCONSIN[1]

A brief review of the principal provisions of the law may be of interest. The term "income" is made to cover all rent of real estate, wages, salaries, dividends, business profits, interest upon investments, royalties, and all income derived from any source not exempted by law.

The law applies to all residents of the state, and to non-residents upon such income as is derived from sources within the state or within its jurisdiction. It also covers corporations, joint stock companies or associations organized for profit, and copartnerships.

The income of a resident derived from business partly within and partly without the state is taxed only upon that part of the income derived from the business within the state. Income, however, that is derived from rentals, stocks, bonds, securities, or evidences of indebtedness is taxed on the full amount under the rule that intangible property follows the residence of the owner for purposes of taxation.

The family is taxed as a unit, the income of the wife and children under eighteen years of age being added to that of the husband when they are not living separately from husband or parents.

Fairly liberal exemptions are allowed individuals. If single, income up to and including $800 is exempt; in the case of husband and wife, $1,200 is exempt, and for each child under the age of eighteen years an additional exemption of $200 is allowed.

Individuals are also allowed certain deductions, such as ordinary and necessary expenses actually paid within the year in carrying on the profession, occupation or business from which the income is derived, including a reasonable allowance for depreciation of the property from which the income is derived, losses during the year not compensated for by insurance or otherwise, dividends or income received from investments otherwise taxed under the income tax law, interest paid on indebtedness, interest received from exempt securities, salaries and pensions received from the United States government. Inheritances upon which the inheritance tax has been paid, and insurance to the amount of $10,000 received by legal dependents of the decedent, can also be deducted from income.

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[1] Adapted from the *Third Biennial Report of the Minnesota Tax Commission* (1912), pp. 154–64.

No exemptions are allowed corporations, joint stock companies or associations, but certain deductions, similar to those allowed individuals, are permitted. In addition, salaries of officers and employees may also be deducted, provided that the name, address, and amount paid each officer or employee to whom a compensation of $700 or more was paid during the year is reported.

Deductions can also be made for taxes paid in other states upon the source from which the income taxed under the law is derived.

The tax rate is progressive, bearing more lightly upon those with small incomes and more heavily on those with larger ones. It begins with 1 per cent on the first $1,000 of taxable income and increases to 1¼ per cent on the second $1,000, 1½ per cent on the third $1,000, 1¾ per cent on the fourth $1,000, 2 per cent on the fifth $1,000, and one-half per cent more upon each additional $1,000 up to 5½ per cent on the twelfth $1,000. On the excess above $12,000 the rate remains stationary at 6 per cent.

The rates are cumulative. For example, a taxable income of $1,000 would pay $10; if the income amounted to $2,000 the tax would be $22.50, on $3,000 it would be $37.50, on $4,000, $55, and upon $5,000 it would amount to $75. If an individual has paid personal property taxes he is allowed an offset for the full amount paid upon production of this tax receipt if such taxes were upon the property or business from which the income is derived.

The table of rates for corporations, joint stock companies, and associations is based on a somewhat novel principle and differs materially from that of individuals. An attempt is made to adjust such rates on the earning power of the corporation. The earning power in turn is based on the relation of the taxable income to the assessed value of the property used in producing the income. The theory of the corporation rate is that the larger the investment in proportion to the profits earned, the lower the rate should be. Following this theory, the law provides that if the taxable income equals 1 per cent or less of the assessed value of the property, the rate shall be one-half of 1 per cent upon the income. If the taxable income is more than 1 per cent but does not exceed 2 per cent, the rate shall be 1 per cent. If more than two per cent and less than 3 per cent, the rate is fixed at 1½ per cent, and so on by steps of 1 per cent for the proportion, and one-half of 1 per cent for the rate, until 6 per cent is reached upon profits amounting to 12 per cent. The rate on profits amounting to more than 12 per cent remains uniform at 6 per cent.

The most striking feature of the administrative scheme is the degree to which the work is centralized in the tax commission. While other states that have experimented with income taxation have usually entrusted its enforcement to local authorities, Wisconsin has reversed the rule and is trying centralized authority.

The district assessors assess the income of individuals and the tax commission the income of corporations, joint stock companies, and associations. The income tax is collected in the same manner as personal property taxes. Such taxes are apportioned 10 per cent to the state, 20 per cent to the county, and 70 per cent to the town, city, or village in which the tax was assessed, levied and collected.

In point of revenue the income tax law in Wisconsin has in its first year more than met the expectations of its advocates. The income tax assessed this year will exceed $3,300,000. This is quite a remarkable showing for the first year, especially when compared with results obtained in other states that have experimented with similar laws. It even exceeds the amount collected under the first federal income tax law in 1863 by more than $550,000, although that law applied to the entire country.

Of the total tax, corporations will contribute about $2,200,000, or nearly 66½ per cent of the total, and individuals and firms about $1,110,000, or 33½ per cent of the total tax.[1] It is estimated that the average rate on corporations will be between 5 and 6 per cent, while the rate on individuals and firms will be slightly in excess of 2 per cent.

The preceding figures represent the total income tax assessed from which, of course, a very considerable deduction will be made for taxes paid on personal property. No accurate data are yet available as to how much this offset will be, but from investigations already made it is estimated that the net tax on individuals will be about 80 per cent, and on corporations about 50 per cent of the total income tax assessed. On this basis the income tax will yield net above the personalty offset about $1,980,000, of which amount the state will receive $198,000, the counties $396,000, and the towns, cities, and villages $1,387,000. These amounts represent clear gains in public revenues resulting from the income tax law.

The advocates of the income tax have always contended that eventually such a tax would enable the state to exempt personal property from taxation, except public utilities and banks, without impairing the public revenues. This could almost be done the first year. The entire tax levied on personal property this year is estimated to yield about $4,100,000, an amount only about $800,000 in excess of the income tax. It is not improbable that within the next two or three years the personal property tax, with the exceptions above indicated, could be entirely abolished without any diminution in the public revenues.

Centralized administration is the strong feature of the Wisconsin income tax law and much of its success is undoubtedly due to this important provision. It is also strong in many other features not heretofore included in the income tax laws of other states. They are thus summarized by a member of the Wisconsin state tax commission:[2]

> In the mind of practically everybody connected with the administration of the Wisconsin tax, three more or less novel conclusions have been established beyond reasonable doubt.
>
> First, the American taxpayer is honest and will tell the truth provided you take the trouble to ask him direct questions and provided the rate of taxation is reasonable and not—as the ordinary property tax rate is on securities—confiscatory. The maximum rate under the Wisconsin income tax is 6 per cent, whereas the old property tax frequently took from 20 to 60 per cent of the net income from credits when by some unhappy chance the assessor happened to find them. . . . .
>
> The second conviction noted above is simply that the idea of collection at source has been greatly exaggerated. A very large majority of the stockholders of the corporations represented in any state live in that state. With respect to these the tax can be collected at the source. Moreover, every corporation doing business in a state can be, and in Wisconsin has been, asked to report all the stockholders and salaried employees living in Wisconsin with the dividends and salaries paid to them, respectively. Furthermore, corporation bonds may be defined as an interest in the business and the tax is collected directly from the corporation, the corporation

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[1] The tax was primarily an urban tax. Over 40 per cent of the tax was assessed in Milwaukee alone, and more than 80 per cent in the seventeen counties containing cities of the second, third, and fourth classes.

[2] Professor T. S. Adams.

being authorized to deduct the tax from the interest when it has not covenanted to pay the tax itself. This has been done in Wisconsin. The remaining forms of income will be taken care of by the honesty of the average taxpayer when the rate is reasonable.

This surprising notion of the honesty of the taxpayers is not mere sentimentalism and not mere buncombe. It is completely borne out by the facts. The impression of practically everybody connected with the administration of the Wisconsin income tax is that more than 90 per cent of the net income theoretically taxable under the Wisconsin law has been voluntarily returned.

The third novel conclusion is that a state income has, as contrasted with the federal income tax, more natural advantages than disadvantages. It may have where properly administered, and does have in Wisconsin, ten times the local knowledge because it can have ten times the number of assessors by combining the machinery of the general tax system with the machinery of the income tax. In literally hundreds of cases the writer has discovered that reports under the Wisconsin income tax were more carefully made than under the federal corporation excise tax and fewer doubtful questions decided in favor of the taxpayer.

254. SEPARATION OF STATE AND LOCAL REVENUES[1]

ADVANTAGES OF SEPARATION

The advantages to be derived from the separation of state and local revenues are declared to be: (1) conformity of tax system to natural division of government; (2) greater equality of assessment; (3) lower tax rates; (4) the elimination of the conflicts between city and country; and (5) a greater flexibility of taxes and larger adaptation of means to end.[2] The growth of statewide business has made it necessary to materially modify the tax system. The taxation of corporations by special acts has tended steadily to separate the sources of the state's revenue from those of the local governments. It is felt that in addition to securing a natural division of taxing function based upon the character of the government, such separation would eliminate the efforts now made to keep assessments lower, since the question would then become a local one. Local tax rates would be reduced by the amount of the former state tax and some of the old causes of strife between city and country over the assessments no longer existing, would do away with that friction, since each community would in a large measure determine its own basis of assessment. And finally, each community could work out for itself the adjustment between assessment, taxes, and expenditures which seemed wise to the people of the district.

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[1] Adapted from the *First Biennial Report of the Minnesota Tax Commission* (1908), pp. 204 ff.

[2] Professor Seligman, in Proceedings of National Tax Conference, 1907, p. 49.

OBJECTIONS TO SEPARATION OF STATE AND LOCAL REVENUES

To these but briefly stated advantages, some objection can be and has been made. The original purpose in separating state and local revenues was to remove the problem of equalization as a state issue, but with this has gone in the later statements of the plans the home rule idea of taxation. The only freedom the local governments would have would be in the matter of exemptions, since the state would certainly not give a local government the power to make substitutes for the personal property tax. One can hardly conceive of a more hodgepodge system of taxation than that likely to arise out of a system of home rule where each community was permitted to do as it pleased. Home rule becomes in its last analysis, where such powers of legislation are not granted to the local governments, a synonym for the single tax of real estate.[1] Here again the question may arise as to the equality of assessment as between adjoining local government districts. In one instance the assessment may be high, in the other low, yet the owners may be competitors in the same market with fundamentally different tax burdens on practically the same kind of property. In fact, the argument and the necessities of the situation seem to point to centralization of assessment methods and the removal of the more objectionable features of the personal property tax through the taxation of credits, moneys, stock and bonds at their source, namely, as they are found in the possession of corporations. This, however, as a system is a long way from one developed upon the avowed purpose of separating the state from the local revenues.

METHODS OF SECURING SEPARATION

Two methods of securing the separation of state from local revenues have been suggested:

1. The first method proposes the abandonment of the general property tax as a means of raising state revenues and the substitution

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[1] Professor T. S. Adams, in National Tax Conference, 1907, p. 518.

in its place of special corporation taxes, tax on inheritances, license taxes, etc. It is not, however, every state that has sources of revenue large enough to make it possible to raise all the revenue needed from the tax on corporation and inheritances. The best that can be done in states where such is the case is to develop as far as possible the special taxes on corporations and inheritances and rely for the balance upon the taxation of the general property in the state.

2. In order to meet the difficulty referred to above, that of insufficient sources of revenue to permit of separation of state and local revenues, it has been proposed to call upon the local governments to contribute to the expenses of the state in proportion to their expenditures and by this means secure what was accomplished by the special taxation of corporations.

The objection urged against this plan is the check it places upon local expenditures. This would be especially true of new communities that are struggling to secure better roads, pavements, sewers, electric lights, and schools. Such communities would be punished for the expenditures made for improvements. While this objection in the long run would not hold good it is doubtful if the legislatures of any considerable number of states would look with favor upon the plan. They would prefer the more direct way of taxing corporations.

An objection to separation as distinct from centralization, which can be given at least an early place in the list, is the violation of the principle of a budget which ensues when the emphasis is placed upon separation of state from local revenues. That principle may be formulated in this fashion: no greater sum shall be raised by taxation than is necessary to meet the expenses of government. The taxation of corporations without regard to the returns likely to be received from them may or may not produce sufficient revenue; if it produces more than enough the resulting effects on legislative action and the attitude of the people are by no means happy. In other words, elasticity of revenue is almost an essential of good government. In addition to this objection there is also the loss of interest by the people in the expenditures of the state when the revenues for state purposes are raised entirely from indirect sources. It is not to be argued from this statement that the taxes for commonwealth purposes shall be raised by direct taxation alone, but it does follow that the state will do well not to separate state from local revenues to the degree called for by the advocates of the idea, but secure incidental separation without giving over the right to lay a direct tax. If you do not have separation of state and local revenues, it is said, the problem of equalization is an ever present one. This problem, however, is to be met by centralization of assessment, now made possible by the creation of permanent tax commissions. As said above, the placing of local taxation at the will of the local government cannot result in any great betterment of the situation, but is likely to produce confusion, inequality of taxation, and overlapping due to the narrow confines of the local governments.

255. THE TAXES ON LAND IN WESTERN CANADA[1]

The more recent trend of sentiment in favor of the taxation of land values as the principal source of state and local revenues is in the direction of a modified form of the Henry George theory of community ownership. That theory does not appeal to the average American citizen in whom the desire for ownership is almost as deeply rooted as the love of home and family. He cannot or will not reconcile himself to the theory that the growth in the value of land is a communal interest and should be shared in common by all the people. The new school confines its advocacy of the land tax to the simple proposition of making land values the basis of state and local taxation, exempting improvements and all forms of personal property. The Henry George advocates would socialize land; the new school would simply use it as the sole basis of state and local taxation.

A brief review of the taxing system of the four western provinces—Manitoba, Saskatchewan, Alberta, and British Columbia—may be of interest.

TAXATION IN MANITOBA

The province of Manitoba imposes no provincial tax on real or personal property. The public revenues, in addition to the Dominion subsidy, are derived principally from provincial lands, liquor licenses, railroad, corporation, and inheritance taxes, and other special taxes and fees. Municipalities, however, are authorized to impose a tax on both real and personal property, subject to certain exemptions. The real estate exemptions are similar to our own and include public property, and property used for educational, religious, and charitable purposes. Creameries and cheese factories are also exempt. Personal property exemptions include household goods and effects, and the live stock and farm tools and implements of farmers used and kept on the premises of the owner. Cities and villages are authorized under certain conditions to impose a business tax in lieu of personal property taxes.

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[1] Adapted from the *Third Biennial Report of the Minnesota Tax Commission,* (1912), pp. 167–74.

Winnipeg, the principal city of the province, derives its public revenue from real estate, business, and franchise taxes. Land for purposes of taxation is assessed at full value and buildings and improvements at two-thirds of full value. The rate of taxation in 1911 was 13.25 mills.

The business tax was introduced in Winnipeg in 1893 to take the place of personal property taxes. Originally the tax was based on measurement, that is, on the number of square feet occupied by the business. This system was changed in 1906 to a rental basis. The tax is now imposed on the rental value of the property occupied by the business. The assessed rental value may be more or less than the actual rent paid if, in the opinion of the assessment commissioner, the true rental value is more or less than the actual rent paid. The present rate is 6⅔ per cent on the rental value. Under this rate, if the rental value of a store building was $3,000 per year the tax would amount to $200. The total tax derived from this source amounted to about $270,000 in 1911.

While the business tax in Winnipeg does not give entire satisfaction, it is regarded with greater favor than the personal property tax.

TAXATION IN SASKATCHEWAN

Saskatchewan, the first province west of Manitoba, imposes no provincial tax on real or personal property. The provincial revenues are derived from sources similar to that of Manitoba. The power to tax real estate and to impose business and income taxes is delegated to the municipalities, but they are not authorized to tax personal property. Land is assessed at full value, but buildings and improvements cannot be assessed at more than 60 per cent of full value. Under a law passed in 1910 cities and villages may reduce the assessment on buildings and improvements 15 per cent per year until entirely eliminated. This law will enable cities and villages to bring about entire exemption of buildings and improvements within a period of four years if they so desire. Many of the cities and villages are taking advantage of this provision of law and will eventually entirely exempt this class of property from taxation.

The business tax in the cities of Saskatchewan is based on the floor space occupied by the business. Businesses are classified and a different rate applied to each class. The rate of assessment varies from 50 cents to $8 per square foot, according to the class of business. The lowest rate is on flour mills and sash and door factories, and the highest on bankers, brokers, and financial institutions. The business tax seems to give general satisfaction.

An interesting example of the working of the two systems of taxation—taxing land and improvements and taxing land only—was exemplified in the city of Lloydminster, half of which is in Saskatchewan and half in Alberta. That part of the city which is in Saskatchewan levied a tax on buildings and improvements as well as on land, while the part in Alberta taxed the land only. The result was that the Alberta side forged ahead of the Saskatchewan side, and while most of the retail business was done in the latter, all of the better class of residences were built on the Alberta side.

Commenting on the exemption of buildings and improvements from taxation, the minister of municipal affairs of Saskatchewan in a report issued in 1911 says:

> In connection with cities might be mentioned the growing interest in the single tax system and the application in our cities of some of the principles propounded by Henry George. It has often been stated, and should be as often repeated, that the public-spirited owner of a lot, who erects thereon a building which improves the street and enhances the value of the surrounding property, should not be made to pay a penalty by way of taxes as a result of his efforts and enterprise while the neighboring land owner, who keeps vacant the adjoining lot for speculative purposes, enjoys, without effort on his part, the fruits of another's enterprise in making proper use of his holding. On the other hand, the fact is not to be overlooked that a building is more of a charge on the municipality by way of police and fire protection than is a vacant lot. It has many opponents in eastern provinces, but the examples set by the cities of Vancouver and Edmonton and the sentiments in this regard expressed by many leading municipal men in the province go to show that it has many strong advocates in western Canada.

TAXATION IN ALBERTA

The tax system of Alberta is similar to that of Saskatchewan, with the difference that buildings and improvements are now exempt from taxation in almost the entire province. Except in one or two cities, personal property is also exempted from taxation. A peculiar feature of the Alberta taxing system is a tax levied in rural municipalities at so much per acre without regard to the value of the land. In such municipalities a tax of one and one-quarter of a cent per acre is levied for educational purposes, and an additional tax varying from 1¼ cents to 5 cents an acre for general purposes. A tax levied on the acre principle has little to commend it, but as the rate is quite low it seems to be accepted without much criticism.

In Calgary, the principal city of Alberta, land is assessed at full value. Prior to 1909 buildings and improvements were assessed at full value. In 1909 the assessment was made at 80 per cent, in 1910 at 50 per cent, and in 1911 at 25 per cent of full value. Under a recent law the assessment on buildings and improvements must be reduced at least 10 per cent each year until entirely eliminated.

Edmonton, the capital city of the province, is the only city of importance in the Canadian West that has adopted the single tax system in its entirety. A tax on land values alone is the only tax levied in that city. The city has had a marvelous growth in the past few years, but whether or not such growth has been due in part to its tax system is a question of some dispute. That it is giving general satisfaction is evidenced by the fact that nearly every resident of the city is an ardent single taxer.

TAXATION IN BRITISH COLUMBIA

There is no provincial tax on real estate in British Columbia, except in unorganized districts. A provincial tax, however, is levied on personal property and incomes. Household goods, money and credits, and several other classes of personal property are exempt from taxation. Land for purposes of taxation is classified as improved, wild, timber, and coal lands, and a different rate of taxation imposed on each class. The rate for the revenue year of 1910–1911 was one-half of 1 per cent on the assessed value of improved lands, 4 per cent on wild lands, 2 per cent on timber land, and 1 per cent on worked and 2 per cent on unworked coal lands. Mines are taxed on the output, the rate being 2 per cent on the value of the ore mined.

In 1911 a royal commission on taxation was appointed to investigate the revenue system of the province and to make such recommendations as it deemed expedient for the improvement of its taxing system. After a careful investigation, the commission recommended, among other things, the abolition of the personal property tax, and the tax on buildings and improvements on lands. On the latter question the commission says:

> Further, it has been argued, again as a matter of principle, that improvements on lands should be exempt from taxation altogether, and that the basis of valuation for the purposes of taxation should be the reasonable sale price of the land in a state of nature, due regard being had in fixing the price to all the conditions as to location, facility of access, fertility, and so on, that would influence a purchaser. On such a theory it would follow that all lands of the same class or character would not necessarily be valued at the same rate, and also the use to which the owner may put the land would not be taken into account. One might put a building on his land; another might grow hay; another might use his as a pasture. All these uses would be beneficial to the community, but, according to such theorists, they ought not to be the determining causes of the value of the land. If they were, the value would fluctuate with the changing uses to which the land might be put from time to time.
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> Further, it has been contended that an improved piece of land should be valued for purposes of taxation at the same value as a similar piece of unimproved land, but that in valuing the improved land the value of the improvements should not be considered except for the purposes of arriving at the value of the land itself, and that this true value should be the selling value of the land subject to deduction for the present value of the improvements thereon. . . . . It has been urged that the taxation of improvements, like the taxation of personal property, would be a penalization of thrift and energy, and ought to be abolished in a community whose chief aims are progress and the development of all kinds of industry.
>
> Finally, it has been maintained that the exemption of improvements from taxation would more especially relieve the farmers and the agricultural classes generally, who, in the judgment of your commissioners, should be especially encouraged, the prosperity of no other class being so essential to the best interests of the province at large.

Largely as a result of the report of the royal commission an amendment to the tax laws of the province was enacted under which no tax will be imposed on buildings and improvements on lands or on personal property after January first of the coming year.

Vancouver, the metropolis of British Columbia, was the first city in Canada to exempt buildings and improvements on land from taxation. The first step toward exemption was taken in 1895 when the assessment on improvements was reduced to 50 per cent of full value. This was followed in 1906 by an additional decrease of 25 per cent, and in 1910 entire exemption was brought about.

The result, it is claimed was magical. There was an immediate leap forward in local prosperity, huge buildings at once began to rise up where shacks had stood, and the city grew in population by leaps and bounds. Ten years ago it had a population of less than 27,000; today it exceeds 150,000. In 1901 the assessed value of land was less than $23,000,000; today it exceeds $100,000,000. That the marvelous growth of the city is entirely due to its taxing system is not claimed, but that it has stimulated and aided such growth is generally admitted.

In Vancouver, as elsewhere, some criticism of the principle of exempting buildings is heard because of the claim that as buildings increase in size and number there is a corresponding increase in the cost of police and fire protection and other public service, and that it is unfair to require the land to bear this added burden.

In answer, it is contended that buildings increased the value of the land—the adjoining vacant lot as well as the lot on which the building is erected—and that therefore the added burden should justly fall on the land. They point out that it is land, not buildings, that increases in value in a growing city; that police and fire protection and other public service are not elements of value; that such service neither increases nor decreases the cost of building, and therefore in justice should not be charged to the building.

Whatever merit there may be in either contention, it is but fair to add that a large majority of the people of Vancouver seem to be strong advocates and supporters of the principle of exempting buildings and improvements from taxation.

GROWTH OF THE SINGLE TAX PRINCIPLE IN WESTERN CANADA

The most striking feature in a study of tax reform in western Canada is the strong trend throughout the entire country in the direction of the single tax principle. That so far it is working satisfactorily wherever tried is generally admitted, even by opponents of the principle. In no district in which the principle has been applied is there any noticeable desire to return to the old system.

256. THE SINGLE-TAX ARGUMENT[1]

THE ARGUMENT

The argument in the case may be put briefly as follows:

The three economic legs necessary and sufficient whereupon the single tax stool may firmly stand are found in three generic peculiarities quite exceptional in their nature, which distinguish land from houses or other man-made products. The failure to recognize this distinction is, we believe, sufficient to account for the crookedness of present systems of taxation. Such a recognition must lie at the very foundation of any just system of the future.

These three attributes, firmly grounded in orthodox economics, are, in economic language, as follows:

a) The site value of land is a social product.

b) A land tax cannot be "shifted."

c) The selling value of land is an untaxed value.

These three fundamentals are worthy of brief separate consideration.

a) First in order is the fact that land value is a social product, i.e., it is created principally by the community through its activities, industries, and expenditures. The value of land is based primarily upon economic rent, defined as "what land is worth for use," what it would command in the open market.

Strictly speaking this "worth for use" usually attaches not to the land itself, not to the earth's surface, not to the inherent capabilities of the soil, not to light and air or other bounties of nature resident in the land, but to scores of things exterior to the land and through it made available for use, so that, as applied to urban land, the following would be a more accurate definition:

Ground rent is the annual value of the exclusive use and control of a given area of land, involving the enjoyment of those "rights and privileges thereto pertaining" which are stipulated in every title deed, and which, enumerated specifically, are as follows: right and ease of access to water, health inspection, sewerage, fire protection, police, schools, libraries, museums, parks, playgrounds, steam and electric railway service, gas and electric lighting, telegraph and telephone service, subways, ferries, churches, public schools, private schools, colleges, universities, public buildings—utilities which depend for their efficiency and economy on the character of the government; which collectively constitute the economic and social advantages of the land; and which are due to the presence and activity of population, and are inseparable therefrom, including the benefit of proximity to, and command of, facilities for commerce and communication with the world—an artificial value created primarily through public expenditure of taxes. In practice, the term "land" is erroneously made to include destructible elements which require constant replenishment; but these form no part of this economic advantage of situation or site value.

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[1] Adapted from C. B. Fillebrown, "The Single Tax," in *State and Local Taxation*, Addresses and Proceedings of the First National Conference of the National Tax Association (1907), pp. 287–91. The Macmillan Co., 1908.

Consequently ground rent may be said to result from at least three distinct causes, all of which are connected with aggregated social, as distinguished from individual, activity: (1) public expenditure; (2) quasi-public expenditure; (3) private expenditure. Thus their very nature and origin would seem to point to land values as peculiarly fitted to bear justly the burden of taxation.

b) Second in order is the fundamental fact that a tax upon ground rent cannot be shifted upon the tenant in increased rent. The argument in the case may run thus: Ground rent, "what land is worth for use," is determined not by taxation, but by demand. Ground rent is the gross income, what the user pays for the use of land; a tax is a charge upon this income, similar in its nature to the incumbrance of mortgage interest. It is a matter of everyday knowledge that even though land be mortgaged nearly to its full value, no owner would think to rid himself of the mortgage interest that he has to pay through raising his tenant's rent by a corresponding amount. Mortgage interest is a lien upon land held by an individual; similarly, a tax may be conceived most clearly as a lien upon land held by the state. Both affect the relations between owner and mortgagor, and between owner and state respectively; neither has any bearing upon the relations between owner and tenant. "Tax" is simply the name of that part of the gross ground rent which is taken by the state in taxation, the other part going to the owner; the ratio these two parts bear to one another has no effect upon the gross rent figure, which is always the sum of these two parts, viz., the net rent plus the tax. The greater the tax the smaller the net rent to the owner, and vice versa. Ground rent is, as a rule, "all that the traffic will bear"; that is, the owner gets all he can for use of his land, whether the tax be light or heavy. Putting more tax upon land will not make it worth any more for use. If the market value of a lot of land for use is $300 a year, a tax of $100 will not make it worth $400 a year.

These two propositions (*a*) that land value is a social product, and (*b*) that a tax upon land cannot be shifted by the owner upon his tenant in increased rent, are well settled in the professional mind.

c) Third and last is the fact, a necessary corollary of the second, that the selling value of land is an untaxed value, a proposition that has received the definite approval of upwards of fifty leading American teachers of economics and has been seriously questioned by but two or three of the three hundred to whom it has been submitted.

Every purchaser of a piece of property knows, without argument, that he is governed as to the price he will pay, not by the gross income, but by the net income that will remain to him after all charges and incumbrances by way of mortgage interest or tax have been discharged.

To illustrate: Assuming a piece of land worth $300 a year for use to be free of all charges and incumbrances, and assuming the current rate of interest to be 5 per cent per annum, a purchaser would buy the lot for $6,000, because interest upon that sum would amount to the stipulated $300 a year. But assume that, on the contrary, it is found to be subject to a mortgage of $2,000, upon which the annual interest charge is $100; then he will buy the land, not at $6,000, but at $4,000, the value of the equity remaining after mortgage interest has been paid.

But assume further that this lot of land, besides being subject to a mortgage of $2,000, is subject also to an established tax of $100, which charge the purchaser must also assume. He will then purchase the land not at $4,000, but at $2,000. The tax charge of $100 and the mortgage interest charge of $100 respectively reduce the selling price of land by the same amount, $2,000. The mortgage and the tax together therefore reduce it by $4,000; and the purchaser will buy the land at $2,000, the value of the equity that remains after both mortgage interest and tax have been paid. This $2,000 is the capitalization of the annual value of the lot after all charges have been met. The gross value is the taxed value. The net value is an untaxed value.

It follows from the above too brief analysis that, under the present system, *the selling value of land is an untaxed value* and the land owners who invest today are entirely exempt from taxation.

As this exemption of the present owner holds true today, so it will be true in future of each new purchaser subsequently to the imposition of any new tax. It is in the very nature of things that the burden of a land tax cannot be made to survive a change of ownership.

But when we turn to the case of the taxation of houses we find that no parallel appears. Whereas a tax upon the lot could not, in the nature of things, increase its annual rental, or cost for use, a similar tax upon the house is added directly to the annual cost to the user. If a house costing $6,000 to build is subject to a tax of $100, this amount must be paid annually in addition to an interest charge of $300. Increasing or decreasing taxation upon the lot has no influence upon its annual cost to the user; while increasing or decreasing the tax upon the house increases or decreases in exact proportion the annual cost to the user.

The moral of this illustration is that a tenant gets for use annually $300 worth of land for $300, and a house costing $300 for $400. In other words, a house tax of $100 takes in taxation $100 a year of the user's income. A land tax of $100 takes in taxation no part of the income of the present owner, provided that he purchased the land after the tax was imposed.

The beauty of this illustration is that while land stands for everything except the products of labor, a house is here made to stand as the representative of any and all products of individual labor, and the illustration thus becomes all inclusive.

The practical exemption of the selling value of land is vital in its bearing upon any proposition for obtaining an increased revenue from that source, accompanied by a corresponding exemption of other property.

In the light of the foregoing argument it is interesting to consider what one city, the city of Boston, might have done to promote business and secure equity through a sound and just system of taxation.

The following estimate indicates the gigantic proportions of the factor ground rent, and its sufficiency to meet all reasonable costs of government economically administered, not only without impoverishing the land owner, but without subjecting him at any time to a tax more burdensome or more continuous than that borne by every man that has lived in a house since a house tax was invented.

The gross ground rent of the land of the city of Boston is by careful estimate more than	$50,000,000
Of this amount there is already taken in taxation	10,000,000
Leaving to the land owners of today a net ground rent of	$40,000,000

The fact that this sum amounts to $68 per capita, or $340 per family, will help the mind to grasp its magnitude as a factor in the distribution of wealth.

State and local taxes upon improvements, buildings, personal property, and polls amount to something over	11,000,000
If this additional amount were taken from rent there would still remain to the land owners a balance of	$29,000,000
or $48 per capita, or $240 per family.	

Coming to the consideration of the means by which more revenue may be gradually raised from the land and the burden of taxation made more proportionate and reasonable, choice may be had from a variety of methods. The one most frequently suggested is that of appropriating by taxation part or all of the future increase in land values. If Boston should decide to start today and take in taxation her future unearned increment above the present value of $653,000,000 the case would be exactly the same as that of some new community where no value has accrued, a situation in which the ideal justice of the single tax is so frequently conceded.

If Boston had decided ten years ago upon the large annual increase of one dollar per thousand each year for ten years in the rate of taxation upon its land, coupled with similar reduction in rate upon buildings and personal property, that city would be raising today from its land $10 per thousand more than it does now, or,

Land $653,000,000, at $10, an increase of more than	$6,000,000
The increase in land value in the same ten years was $188,000,000, 5 per cent of which is over	$9,000,000

And Boston would be taking in increased taxation today only two-thirds of its land increment for the same ten years.

Under this supposition the $468,000,000 valuation of ten years ago would still remain untouched by taxation, as is now the case with substantially the whole $653,000,000 valuation of 1907.

The foregoing Boston figures are submitted simply for purposes of illustration, not in any way as support of a specific recommendation.

If the preceding argument is valid, it establishes the fact of gross inequality in the incidence of taxation as between land values and improvement values. If it is admittedly wrong that present land values should be untaxed, how can such fiscal wrong best be righted? Begin at once a transfer of taxes from improvements to land so gradual that two old injustices will cease for every new one that is begun, until this untaxed value is made to bear at least its proportionate burden at the same rate with other things.

In conclusion I wish to emphasize this basic fact: that the burden of a land tax cannot be made to survive a change of ownership has in turn this corollary of its own, viz., that a new tax burden if imposed today would in one generation, by sale or by inheritance, cease to be a burden. If all taxes are finally collected from the land owner, he will then be the only man taxed. If another generation serves to let his successor out from under the burden, who will remain under it? Ground rent, economic rent, being an equivalent for value received, is not a burden, and if all taxes are ultimately taken from rent, it follows that in the course of two or three generations taxation may cease entirely from being a burden upon anyone.

If professional economists and taxation experts will at once, to use a nautical phrase, quit their dead reckoning, and steer their craft by the single-tax polestar, time and tide will do the rest.

257. THE LAND-VALUE TAX AS A SOCIAL REFORM[1]

The single tax is least of all a taxing measure. This is but incidental, though essential, to a larger social ideal; an ideal as far-reaching in its consequences as Socialism, but far simpler in its application. Its benefits depend on no revolution, but are realized as fast as the tax is applied. And it is of the Land-Value Tax as a social philosophy that we ask your criticism and suggestion.

TAXATION OF LAND VALUES WILL—

First, put an end to idle land holding.—It will destroy speculation. It will make it impossible to hold land out of use. As the British Chancellor of the Exchequer said: "It will make the dog in the manger pay for his manger." The owner will have to use his land, and use it in the most productive way, in order to pay the taxes.

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[1] From *The Taxation of Land Values*, a pamphlet issued by the Joseph Fels Fund Commission.

That increasing land-value taxes check speculation and stimulate use is a commonplace of experience.

Second, cheapen land.—First. Many owners will sell their unused land in order to be relieved of the burden of taxation.

Second. The taxation of rent will lessen the value of land, for economists agree that the selling value of land is its untaxed value. For taxes levied on land values reduce rent. They fall on the landlord and cannot be shifted. Economic rent is what is left after the payment of taxes. Thus, the competition of sellers and the reduction of rent will cheapen land and throw upon the market idle holdings that will be available for industry, agriculture, and home-building.

Third, solve the housing problem.—The housing question is a land question, not a house question. It exists only where land values are prohibitive. If we cheapen land we open it up to use; if we tax it heavily enough we compel it to be built upon. Idle land holding is only possible where the tax rate is low. Increase the rate and the land is put to productive use. Moreover the removal of taxes on improvements will encourage improvements just as the present taxation of improvements discourages them. Under the land-value tax he who built would be rewarded, while he who refused to do so would be fined. The house tax is like the old French window tax, which caused the peasant to close his cottage to the sunlight.

The taxation of land values would cut like a surgeon's knife at the root of city land monopoly. Shacks and tenements would be improved, while new structures would increase the housing capacity of the city. The tenement and the slum would disappear. No longer would thrift be penalized and the idle speculator be rewarded.

Rents would fall in consequence of the increased supply of houses. Building materials in transition from the mine, the forest, and the factory would be free from taxes, as would houses, office buildings, machinery, and factories. All of these forces together would solve the housing question in a few years' time. They would solve it by the law of competition.

Fourth, destroy all monopolies bottomed on land.—The United States Steel Corporation has capitalized its iron ore and coal fields at $800,000,000. Twenty-five years ago they were farming lands of little value. The anthracite coal combination is capitalized at hundreds of millions by virtue of its ownership of all the anthracite coal in the East. The Standard Oil Company is a monopoly because of its railway and land privileges. Direct land-value taxes upon these resources could not be shifted. They would be deducted from monopoly profits. More than this, idle mineral resources would be forced into use, while labor would be given new opportunities for employment. With the tax sufficiently high, the nation would regain the splendid resources that have been in large measure filched from it by stealth and illegal means. The rent, which now goes to monopoly, would be converted in taxes to the state.

Fifth, improve the condition of capital and labor.—What would labor gain in the new dispensation? Obviously, cheap land means high wages. The history of all new countries proves this. And if the city, suburban, and agricultural land owners were taxed on the opportunities held out of use, they would use their land or sell it. A demand for labor would arise: a demand for miners and agricultural workers, for masons, carpenters, and builders. All other industries would be awakened into life in the process. All business would be stimulated. In a short time—a very short time—there would be more jobs than men seeking them. Now, the entire continent is appropriated, yet it peoples but twenty-three persons to the square mile. America could home ten times its present population were the natural resources opened to use. This the taxation of land values would do. It would increase opportunity, as did the discovery of the continent four hundred years ago.

Sixth, effect a just distribution of wealth.—Even a slight increase in land-value taxes would stimulate the use of land. A doubling of the present rate would usher in an era of industrial prosperity. Were the tax increased to the full rental value, there would be but two claimants to the wealth produced—capital and labor. The landlord would disappear and labor and capital would each get the full value of its product. There would be plenty of alternatives for employment in this country. Wages would rise to the full product of men's toil. The opening up of new opportunities all about us, and the increase in wages would awaken other industry. It would flood mills, factories, mines, and railways with business: for the wants of mankind know no limit.

Industry would reflect the changed conditions. For prosperity means increased demands for all those goods which labor and capital produce. Were the incomes of the salaried, professional, and working classes doubled tomorrow there would arise an era of prosperity the like of which the world has never known. For the purchasing power of America would be doubled in consequence. And in the last analysis prosperity depends not on the cheapness of labor but on the amount of money which the consuming classes have to spend. Industrial prosperity depends on the well-being of the great mass of the people rather than of the few. Through the same influences child labor would disappear, vagrancy would be reduced to a minimum, and crime would be checked at its source. For child labor, vagrancy, and crime are not to be found among those who are well-to-do. They are the costs of poverty.

Seventh, reduce the cost of living despite increased wages.—The federal revenues, amounting to $700,000,000 a year, are collected from consumers. They increase the cost of living. It has been estimated by Professor William G. Sumner of Yale and John A. Hobson of England, that the indirect cost of the tariff, due to the monopoly prices it makes possible, is approximately a billion and a half dollars a year. This is equivalent to $100 a family. The abolition of indirect taxes alone would reduce the cost of living to that extent, while the abolition of the taxes now levied on houses, improvements, tools, machinery, and all other labor products would reduce it still further.

LAND-VALUE TAXATION IS A SOCIAL PHILOSOPHY

Land-value taxation would socialize from fifty to seventy-five per cent of the wealth of America. It would require no new machinery to do this; no state control of industry would be necessary. It would open up the resources of America to those best fitted and having a natural right to use them. It would eliminate the speculator and the land monopolist as toll-takers in distribution. It would destroy private monopoly. It would create opportunities for tens of millions of workers, and would stimulate the production of wealth beyond our present dreams. It would equitably distribute the wealth produced and would increase many fold the amount available for distribution. We believe it would bring about the rapid evolution of a society in which want and the fear of want, poverty and its attendant evils of vice, disease, and crime would disappear.

XX. SOME PROGRAMS OF SOCIAL REFORM

258. PROFIT-SHARING IN THE N. O. NELSON MANUFACTURING CO.[1]

The N. O. Nelson Manufacturing Co. of St. Louis adopted profit-sharing beginning with 1886, when it put in the pay envelopes a 5-line notice that after the commercial rate of interest had been paid on the net capital the remaining profit would be divided by equal percentages on the stock and on the salary and wages of all who had worked six months within the year. The result was a dividend of 5 per cent on wages, which was paid in cash. The next year yielded 10 per cent, which was also paid in cash. The announcement was then made that in the future the dividends would be paid in stock. Following the panic of 1893, dividends on stock and on wages were suspended until 1904, at which time a dividend of 4 per cent was paid for each of the years of this suspension. It was then announced that capital would be allowed 6 per cent, but no further share in the profits, and that the customers would also be taken into the arrangement, thus making it completely co-operative. The customers' dividend is figured, not on the purchases, but on the gross profits. In the years from 1904 to 1912, inclusive, the dividends have ranged from 10 to 20 per cent on salaries and wages, and from 15 to 45 per cent on the gross profits of customers' purchases. Employees and customers together now own about two-thirds of the capital which, including the surplus, amounts to about $1,750,000. The directors, except Mr. Nelson himself, are all employees of various kinds, and at times the customers are represented on the Board. There are now about 1,200 employees, of whom approximately three-quarters are factory workers in St. Louis, Mo., Leclaire, Ill., Bessemer, Ala., and Noblesville, Ind. The remainder are business employees at these places or at branch houses in Memphis, Tenn., Houston, Tex., Los Angeles and San Diego, Cal., Salt Lake City, Utah, and Pueblo, Colo.

In 1890 the company founded the town of Leclaire, Ill., 18 miles northeast from St. Louis. There it built its principal factories, and houses for employees who wanted them, and provided desirable public facilities. Leclaire now has a population of about 1,000, has no political organization, no jail or policemen or other officers, and has never had need of any. It has a public water supply, electric light, a public hall, baseball grounds, a bowling alley, a billiard room, and a 7-acre artificial lake for boating, skating, and swimming. The lots are sold to anybody, whether employee or not. The houses are built according to agreed plans on monthly instalments, the company having only two or three renting houses. The houses are mostly of 3 to 6 rooms, built on lots of from 50 to 100 feet front, by about 160 feet in depth. They are subject to no rules whatever, but are all well kept, and some are as handsomely landscaped as those of rich people elsewhere. Mr. Nelson has made his own home in Leclaire since 1897.

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[1] Information communicated by Mr. N. O. Nelson.

The profit-sharing as well as the town-making have been eminently satisfactory. No one has thought of changing the system. Mr. Nelson is convinced that with ordinary common-sense, provision for steady work and owned homes, and with provision for social life, there is no need of policemen, jails, or poorhouses, and almost none for doctors, lawyers, or courts. The employees and neighbors have a co-operative store conducted on the Rochdale plan from which they buy at the usual prices, get 6 per cent interest on their investment, and have a regular dividend or rebate of 10 per cent on purchases.

259. PROFIT-SHARING AND LABOR COPARTNERSHIP[1]

The scheme of my own firm, J., T. & J. Taylor Ltd., woolen manufacturers, Batley, based, like others, on the theory that profit is the joint product of capital and labor, is as follows: The first claim of labor (in which I include all forms of human exertion) is met during the year by the payment of salaries and wages. Next comes the first claim of capital to 5 per cent interest as a first charge upon any profits shown in the balance-sheet at the end of each year. If there are not profits capital gets nothing. If, after paying 5 per cent interest on all shares (the majority of which are now owned by our employees), a divisible balance remains, it is apportioned between capital and the total amount paid during the year for labor according to their respective amounts, that is, at the same rate per cent. To employees who are not less than twenty-one years of age, who have been five years in our employ, and have retained their bonus shares to the amount of half their yearly wages, we are now giving double bonus. The total amount of such wages, therefore, has to be reckoned double. Let me illustrate.

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[1] From Theodore Cooke Taylor, "Profit-Sharing and Labor Copartnership," in *The Contemporary Review*, CI, 630–31 (May, 1912).

Suppose our capital were £160,000, that during the year we had paid in salaries and wages £90,000, and that workers who had earned one-third of that were entitled to double bonus. We should add £30,000 to the £90,000 actually paid, thus making a total labor item of £120,000. Suppose our divisible profits were £29,000: we should first declare an interest dividend of 5 per cent (that is £8,000) on the capital, leaving £21,000 to be further divided between capital and wages at 7½ per cent. Thus capital, or shares, would get a total dividend (including interest) of 12½ per cent and labor a bonus of 7½ per cent. The workers specially qualified, who earned one-third of the £90,000 actually paid in wages, would get double bonus, that is, at the rate of 15 per cent, while the bonus on the remaining £60,000 wages paid would be at the rate of 7½ per cent. (These labor bonuses have, so far, been given in new fully-paid shares of the company, dividends upon which are paid in cash.) But as only those who remain the whole year are entitled to bonus, we place the bonus accruing upon the wages of those with us only parts of the year to a special fund called the Workers' Benefit Fund, administered in various ways for the benefit of the workers as a whole. For example, needy cases are helped, convalescent and consumptive cases assisted, and benefits extended to our mutual sick-club members. Bonus shares confer all financial rights, but do not carry votes. They can be held only by employees, and so long as a man remains in the company's employ he can sell only the surplus of his holding over the amount of his annual salary or wages. Copartners who leave must sell their shares to some of their copartners remaining. Commenced in 1892, the system, the first three years, applied to managers and foremen only. For the last seventeen years all have been included who have completed a calendar year with the company. The dividends have averaged about 10½ per cent on capital and 7 per cent on labor. There is nothing down in our balance-sheet for good-will, and there is no inflation in valuations. On the usual company basis the capital would have figured as larger; the same totals of profits, therefore, would have yielded lower rates of dividend on both capital and labor.

It is often asked: What about losses? I can speak from experience. In 1897 and 1898 we had no dividend, and I have yet to hear the first word of reproach or mistrust from any one of my copartners. Ours is an old-established, but highly technical, business, difficult to manage. In twenty years the number of our workers has increased from 600 to 1,400, and we have apportioned as the workers' share near £100,000. The system has, during that time, been a benefit to all concerned.

260. A PROMISING VENTURE IN INDUSTRIAL PARTNERSHIP[1]

At some point in the scale of remuneration of every large company occurs a natural division of the workers into two groups. Below the point are those workers whose labor is mainly of a routine character. By special care or effort they can save from their own time or energy or material. They can turn out the same product in fewer hours, or with less effort, or with less waste of materials or power. The problem of their remuneration is essentially one of paying wages in proportion to output, and that problem is perhaps best met at present by some safeguarded variety of piece wage.

Above this group are those workmen who can exercise imagination, often enough men promoted for their fitness from the lower group. They have initiative, they originate. They are men who can think calmly and clearly of two things at once. They can, by mechanical rearrangement, secure real economies, economies independent of extra strain by workmen. They can exercise discretion in buying materials or selling finished product, and, by their understanding of a complicated situation, may exercise their discretion wisely and profitably. For their success they are further promoted in position or salary. From the most successful of them the higher officers and the directors of the company are naturally chosen. Since increased profits of the company are so intimately dependent on the energies of the entire active managing body, and not on stockholders who send proxies or have an otherwise external relation, should not the entire increase of profits of the company go to these men? That they should, and that thereby the finest morale of the company may be preserved and indefinitely continued, has been the belief of the reincorporators of the Dennison Company.

The stockholders of the old company became under the new the owners of first preferred stock to the amount of $4,500,000, on which a cumulative dividend at the rate of 8 per cent is due. Provision is made for the issue of second preferred stock in series, each series having an unchangeable rate of dividend not less than 4 per cent. The circumstances of the issue of this stock are stated below. After dividends on the first and second preferred stocks have been paid, there will be deducted annually from the remaining net profits 5 per cent of the remainder for the purpose of buying in shares of first preferred stock upon favorable occasion.

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[1] From Robert F. Foerster, "A Promising Venture in Industrial Partnership," in the *Annals of the American Academy of Political and Social Science*, XLIV, 97–103 (November, 1912).

An issue of industrial partnership stock to the amount of $1,050,000 is authorized. Such stock may be owned only by so-called principal employees, the group already described. They are persons who in the previous year have received for their labors (*a*) $1,200 or over and been seven years in service; (*b*) $1,500 and six years in service; (*c*) $1,800 and five years. Such principal employees receive shares of industrial partnership stock in a number proportional to their wages. Stock shall not be issued for cash, but shall represent profits of the company, and therefore be distributed without special charge to those whose peculiar efforts are chiefly, in the long run, the means of securing the profits. But no new issue or industrial partnership stock shall take place until a 5 per cent cash dividend has been paid on the outstanding industrial partnership stock. To insure the frequent, probably annual, issue of such stock, no cash dividend upon it shall ever exceed 20 per cent in one year.

A crucial question in this connection is, how shall the issues of industrial partnership stock be apportioned? Certainly by no human device can the final profits of a complex business be perfectly ascribed to individual workmen composing the business. Yet a working approximation seems not impossible. In the salaries that men get there is a kind of index to their comparative values to the business; no perfect index again, yet one that results from the best available discernment. Let him whose salary is twice that of another, receive twice the other's allotment of stock. Industrial partnership stock is issued in $10 denominations, so that many gradations of amount may be adequately expressed.

Where ordinary remuneration is the basis of issues of new stock, there appears an incentive for each man to make himself worth more in the daily execution of his tasks and so to qualify himself for another position which would bring not only higher salary, but, correspondingly, a more liberal allotment of stock.

Only active workmen still in service may be holders of industrial partnership stock. That is partly because of arrangements as to voting, presently to be described, but chiefly in order that future increments of profit may be divided only among those who may be regarded as responsible for them. Hence in case an employee leaves the company or dies, his stock may either be purchased by the company for cash or converted by the company into second preferred stock paying an unvarying rate of dividend and never receiving an allotment of new stock. So the retiring employee may receive and, as the case may be, may bequeath to others a capital amount representing his saved earnings, but he may not transmit a claim to increased future profits which he and his descendants have not helped to create. At the option of the company cash may be paid, instead of second preferred stock, to the retiring owner of industrial partnership stock.

What this arrangement implies when read in the light of the position and destiny of the preferred stocks is the most interesting part of the Dennison scheme. In all probability a considerable amount of industrial partnership stock will be issued, but it may be some years before $1,000,000 will be outstanding. Until that date arrives, stockholders of all classes will vote according to the capital value of their shares, the holder of one share of first preferred stock, par $100, and the holder of ten shares of industrial partnership stock, par $10, will each have in so far one vote. The larger the amount of industrial partnership stock, the safer will be the return on the preferred stocks. When $1,000,000 of industrial partnership stock is outstanding, the preferred stocks will have sufficient safety no longer to require a vote. Then their holders will cease to vote and the entire management of the concern will fall to the principal employees. These are the persons most fit to manage, the persons who have risen from the lower places, the persons qualified by proved ability and experience to manage the business. Hitherto they have been merely employees, and though performing some of the functions of managers, have not had corresponding authority and privileges in the conduct of the business. Henceforth, as part owners of the business, with an income, above wages, that is large or small according to the character of their management, they will have enough at stake to be trusted as sole managers. Should they fail in their task, reducing, and then maintaining for some time, the dividends of the preferred stocks below the stipulated rates, then the preferred stockholders may resume the management, to retain it until the rates are restored. But for an extended period of inability to pay preferred dividends, such a period as proves that the assets behind the industrial partnership stock have disappeared, the first preferred stockholders shall take over and permanently retain the voting power.

Such collapse seems unlikely. Provisions for redeeming in cash the stock of persons leaving the business, and for buying in shares of the first preferred stock, should prevent the burden of fixed dividend charges from becoming excessive. Also, the checks upon the dividend rate of the industrial partnership stock should lead to a large increase in the outstanding amount of this more variable security. Having lost their vote, the preferred stockholders would become akin to bond creditors. The business would more and more approach the form of a pure industrial partnership.

261. THE ROCHDALE PLAN OF CO-OPERATION[1]

Modern co-operation is essentially democratic—a people's movement far more truly than either trade unionism, agrarianism, or even socialism in its prevalent orthodox form, can be. Its effective practice dates from the adoption of a specific business and social policy drawn up in 1844 by a group of 28 flannel weavers in Rochdale, England. The business principles of this association require detailed mention since, directly and indirectly, they have served quite largely as model for successful co-operative societies of every sort throughout the world.

The Rochdale principles were:

1. Open membership with shares of low denomination—usually at £1 or $5 each and payable by instalments, so as to be within the reach of all.
2. Limitation of the amount of shares to be held by any one member, to prevent wide inequality in financial status of members.
3. Democratic government, each member to have but one vote, irrespective of the number of shares that he or she may hold.
4. Sale of pure goods and fair measure at prevailing market price, to avoid arousing needlessly the destructive hostility of local merchants.
5. Cash sales, to avoid loss through delayed payments and uncollectable accounts, to reduce bookkeeping costs, and to insure purchase of goods on most advantageous terms.

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[1] From James Ford, *Co-operation in New England*, pp. 6–8. Survey Associates, 1913.

6. Payment of not more than 5 per cent interest on shares, the rest of the profits, after deduction for depreciation and reserve, to go partly to an educational fund, partly to charity, and the remainder to be distributed to purchasers whether members or not, in proportion to their trade at the store.

262. CO-OPERATIVE CREAMERIES[1]

In its pure form a co-operative creamery association is an association of local milk producers who by combined capital in shares of low denomination build or purchase a creamery, primarily for the manufacture and sale of butter. Such associations pay a fixed, low rate of interest on shares and distribute other net earnings to milk producers according to the amount of butterfat in the milk they furnish. Furthermore, they grant each member but one vote, irrespective of the number of shares he holds.

There are also among creameries, exactly as among co-operative stores and factories, many organizations that bear the name "co-operative," but which differ from the pure type in that voting by shares is allowed. Such organizations have a certain right to the name "co-operative," since they are formed by large bodies of small local producers, organized to save themselves from the evils of individual production and bargaining. When such societies keep their membership open to all honest producers of the locality who desire to join, and when they devote all earnings above 6 per cent interest on shares to increase the payment to patrons for milk, they are by intention co-operative and are so considered by the community in which they are situated, especially when compared with the proprietary or joint-stock creameries of small and exclusive membership which may exist in the locality.

To the co-operative creamery, farmers within a radius of 10 miles or more may bring their cream or whole milk daily. All but the smallest creameries have "gatherers" who go from farm to farm among the patrons to collect the cream. Sometimes a compromise is effected where farms are inaccessible, and sub-stations are assigned to which farmers bring their cream, thus simplifying the gatherers' work and lessening the cost of this section of creamery expenditure. Once brought to the station the butter fat is separated by mechanical apparatus and is made over into butter. The process is simple; requires but small outlay of capital, $1,000 to $3,000, and the employment usually, aside from gatherers and sales agents, of not more than two employees within the creamery.

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[1] From James Ford, *Co-operation in New England*, pp. 134–39. Survey Associates, 1913.

[For another instance of co-operation in the disposal of agricultural products see Selection 98, "Co-operative Fruit Marketing."—EDITORS.]

One of the largest and most successful of these creameries is the Hampton Co-operative Creamery Association of Easthampton, Massachusetts, founded in 1881. It had in 1911 43 shareholders, mostly of Yankee birth, who held among them $2,500 of capital stock in twenty-five-dollar shares. They own $3,000 worth of real estate free from mortgage and have a reserve of $4,623. Sales for the year 1910 amounted to $86,914 from the profits of which 6 per cent interest on shares was paid to members, the balance going to all patrons whether members or not according to the amount of butterfat in the milk they sold to the creamery. An average of 40 cents per pound was paid patrons for butterfat—a sum equaled by only one other of the reporting co-operative creameries of New England.

The business of the society, according to the *Daily Hampshire Gazette*, is "one of the most prosperous business ventures in our town." During the year 1907 the society received 730,285 pounds of cream yielding 131,844 pounds of butterfat, and made 155,342 pounds of butter, an average of 496 pounds per day; $7,610 worth of cream was sold and $1,440 worth of buttermilk, which until very recent years was thrown away. A wholesale house of a neighboring city purchases their entire output. The butter is made in a light and clean basement room of a model New England farmhouse in Easthampton, under conditions which should satisfy the most exacting customer. The association has further established a deserved reputation among producers for absolute integrity by never during twenty-seven years having failed to send its checks to patrons for their milk on the day payment fell due.

Patrons, many of whom are not stockholders, are admitted to annual meetings and are given opportunity to talk.

263. CO-OPERATIVE STORES[1]

The Riverside Co-operative Association is situated in Maynard, Massachusetts, a textile town with a population of 6,400. At the close of the fiscal year, December 31, 1909, the society comprised about 600 members—Americans, English, Scotch, Irish, Swedes, Danes, Finns, and French—workers in the woolen mills of the town, earning a typical wage of $10 to $15 a week. The capital stock in 1910 was $14,710, divided into shares of $5.00 each, no member holding over 60. The real estate of the association, which consists of a large, three-story wooden building, was estimated at $11,000, mortgaged for $1,500; stock on hand was $8,600; there was also a reserve fund of $4,700. Total sales during 1908 amounted to $83,000. Besides 6 per cent interest paid on shares, an 8 per cent dividend was allowed on trade during the first half year, and a 5 per cent dividend in the second half year (January, 1908, to June, 1908). In all, the sum of $4,860 in dividends had been distributed during that year. Credit is given only to members. Seven of the 11 employees are shareholders. Attendance of 75 members at meetings can be counted upon. It is probable that no co-operative store in urban New England has a wider local influence among the English-speaking population of the community than has this association. By careful management, shrewd by-laws, and high ideals, it has continuously attested the value of the co-operative method.

The largest workingman's co-operative society in New England today is the Lowell Co-operative Association (Sovereigns of Industry), of Lowell, Massachusetts. Organized in 1876, this society had in June, 1911, about 2,200 workingmen shareholders, mostly Irish, and a capital stock of $13,895, in shares of $5.00 each. There was $26,400 invested in real estate free of mortgage. Sales of groceries and coal amounted to almost $220,000. Four per cent interest was paid on shares, 7 per cent dividends on shareholders' purchases, and 5¼ per cent to "members"—general patrons who pay 25 cents to the society and receive ¾ of the regular dividend on purchases without owning shares. In all, from $10,000 to $15,000 has been distributed annually as dividends on purchases. Arrangements are also made with seven local dealers in clothing, boots and shoes, furniture, cutlery, and other wares for 7 per cent discount to stockholders.

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[1] From James Ford, *Co-operation in New England*, pp. 25–27. Survey Associates, 1913.

This is apparently the oldest New England society that has secured and retained the trade discount system. Under continuous, painstaking management this association has in twenty years progressed from ninth to first place in amount of annual trade. By democratic voting, by restriction of credit to members only, and by inducing its employees to become shareholders, it has made co-operation grow out of difficult racial material and in the choking environment of one of the largest mill towns of America.

264. CAUSES OF THE FAILURE OF CO-OPERATIVE STORES IN AMERICA[1]

"In this country Co-operative Distribution has been marked by almost utter failure. So universal has been the disaster that has followed all attempts to save money in purchasing goods of any kind, that the name 'Co-operative Store' has become to the ordinary mind a term of derision."[2]

The causes for this almost universal failure of the co-operative movement are manifold, and many of them are peculiar to this country and to the American people.

Since its commencement, the co-operative movement in the United States has never been satisfactorily organized. Even to-day there are but three states which have any kind of an organization, and in none of these is it what it should be. Fought from all sides as are these co-operative enterprises, it is surprising to realize how few attempts have been made to organize them into protective associations. It is still more surprising to find the lack of information which exists among the co-operators relative to the whereabouts and the status of co-operative stores. Managers of associations in one county do not know that other similar organizations are to be found in the adjoining county, and when it comes to the matter of the co-operative movement in the state at large, there is no one who is able to give a complete list of the stores or their location. This is due primarily to the fact that the associations have no central organization to which they can make reports. In but three states are annual meetings held for the discussion of co-operative matters by the co-operators themselves, while but two attempts at holding a national convention have ever matured. The success of the latter in neither case was very gratifying. Compare these feeble efforts with the solid organizations of the retail grocers, the jobbers, and the wholesalers! Annual conventions of co-operative societies should be held in each state. These associations should elect representatives to a National Co-operative Congress which should likewise be held each year. Without such conferences, without state and national organization, we may expect to see the continued failure of the co-operative movement.

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[1] Adapted from Ira B. Cross, "The Co-operative Store in the United States," pp. 45–50, in the *Twelfth Biennial Report of the Bureau of Labor and Industrial Statistics*, Wisconsin, 1905–6.

[2] Barnard, *Co-operation as a Business*, p. 109.

Another cause for the many wrecks which lie strewn over the field of Consumers' Co-operation is the fact that in times past there have been no wholesale houses from which the retail co-operative stores could obtain their supplies. They have been forced to purchase their stock from the same wholesale house as the other retail merchants. The latter have consistently been successful in forcing the wholesaler to discriminate against the co-operative stores, and the consequence has been that the latter have had to pay higher prices for all goods purchased. In some instances the wholesalers have absolutely refused to deal with the co-operators. These things cannot help but result in placing the latter at a disadvantage in the sale of goods to the public, and have been a fruitful source for the failure of these co-operative enterprises. Today we have two wholesale houses for the co-operative stores, one of which is composed entirely of co-operative societies, and the other but partly. These have proved to be a godsend to the movement and have greatly assisted in its upbuilding. It is expected that many more of these wholesale companies will be started in the future as a result of the continued development of the co-operative movement.

Then too there is lack of the true co-operative spirit. We Americans are primarily a selfish people. We have always been very individualistic in our ideas and actions. We have been accustomed to enjoy the bounties of Nature, the privilege of taking up land, of shifting our residence to accept new employment if the conditions of the old were not satisfactory. All of these things have made us an independent people in most of our actions. We dislike to surrender our individuality to the will of the majority. We are also a heterogeneous people, composed of many nationalities, and as is the case with such nations, it has been a difficult task to weld the different races into a homogeneous body, a body which will work and labor toward an ideal or goal as one people. Likewise we lack that fixity of population, that neighborhood life, which is so characteristic of European countries. We are also an impetuous people. We lack patience. We dislike to wait for the accumulation of dividends, and would rather trade at those stores which give "green trading stamps." If the enterprise in which we are interested. does not prove to be immediately successful, we lose heart and turn our energies to other fields.

Our comparatively high standard of living has not forced us to acquire the penny saving habit so common among the Europeans. We would rather give profits to the merchant as his pay for the management of the retail business of America than bother ourselves with the intricacies of the matter. We also desire a wide choice of goods from which to pick whenever we enter a store. As Americans, we have not become accustomed to the simple and monotonous meals of the Europeans. We desire variety of food as well as variety of clothing. The co-operative stores, however, owing to their limited capitalization, cannot furnish us with this wide choice of goods. Hence we usually trade at other places even though we are members of the co-operative association. This lack of loyalty on the part of the members has been a very important factor in the failure of the co-operative movement in the United States.

The greatest cause of all, however, is the lack of business knowledge, so conspicuous among the co-operators. They take a man from his plow, like Cincinnatus of old, and place him in charge of a co-operative store expecting that he will carry on the business satisfactorily. Or as it often happens, a man will be called from behind a machine in the factory, after having had no business experience other than the payment of bills which his wife may have contracted, and placed behind the manager's desk. The usual result is that sooner or later the co-operators find that the person in whom they have placed their faith is either incompetent or dishonest, and the store is a failure. Poor business methods, injudicious purchases, over-stocking, wastes in weighing, and many other practices, all of which bring disastrous results, are very prominent in the co-operative movement. These, together with the universal ignorance of the co-operators regarding business matters, and the lack of loyalty displayed by them, have been, in general, the fundamental causes for the failure of these stores.

265. WASTES IN THE COMPETITIVE DISTRIBUTION OF MILK[1]

PRESENT SYSTEM	AN EFFICIENT SYSTEM
173 distributors, requiring services of	A single efficient agency could render superior service with
356 men and many families	90 men
360 horses	50 horses
305 milk wagons	25 horse drawn trucks and 6 motor trucks
2509 miles delivering	300 miles travel
62,300 quarts of milk to 45,000 homes	$75,000 equipment of one sanitary milk depot
$76,600 invested in milk-room equipment	$100,000 buildings and real estate
$108,800 invested in horses and wagons	
$282,500 total investment	
$2,000 total daily cost of distribution	$600 estimated daily cost of distribution
$720,000 yearly cost	$220,000 estimated yearly cost

The economies resulting from efficient distribution besides providing better service and purer milk would permit of a saving of at least $500,000 yearly.

266. SOCIALISM[2]

I. DEFINITION

Few movements have been more widely discussed and at the same time more vaguely defined than socialism. The movements to which the term applies have been so diverse in starting-point and in goal, so variously colored by individual experience and social environment, that the common element is often difficult to discern. Socialism has always been an opposition policy, and, as is the way with oppositions, under its banner have marched the most motley forces, at one chiefly in that all were passionately protesting against Things as They Are. It has not yet been codified and delimited by the actualities of office. It is a living movement, changing insensibly with every change in the mental horizon or material conditions of the time, and so impossible to label with the cheerful finality with which the scientist treats a paleolithic fossil. The significance of the term is still further clouded by its frequent use as a bogey with which to ward off any assault whatever on vested rights or vested wrongs—though serviceability for this scarecrow function is happily declining—and by the counter-tendency, wherever disrepute gives place to vogue, of sundry well-meaning sentimentalists to adopt the label to denote their half-baked yearnings.

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[1] From a statement displayed at the 1912 exhibit of the National Dairy Show Association, Chicago. The figures described actual conditions in an American city.

[2] Adapted from O. D. Skelton, *Socialism: A Critical Analysis*, pp. 1–3, 16–39. Houghton Mifflin Co., 1911.

Definiteness may most easily be given the conception by considering it in its relation to the existing industrial system, which socialists are wont to summarize as capitalism. This relation presents four main aspects, which may be noted briefly.

Socialism is in the first place an indictment of any and all industrial systems based on private property and competition. The indictment is urged hotly and with unsparing detail, in ponderous treatise and fleeting pamphlet, through party organs and on party platforms.

Socialism in the second aspect presents an analysis of capitalism. Its origin is accounted for, and its present working described. This analysis is undertaken with very different motives according as the reigning philosophical prepossessions vary. To the utopian believer in the benevolence of all Nature's intentions and the preordained harmony of the world, it seems necessary to account for the wide divergence between design and reality. To the more recent thinker, saturated with Hegelian or Darwinian conceptions of development, scientific discussion inevitably runs in terms of final goal or of origins. Whatever the standpoint, this phase of the subject is rarely lacking in any fully developed socialistic system.

From a third viewpoint socialism presents a substitute for capitalism. More or less in detail, according as theoretical or tactical exigencies necessitate, every socialist system forecasts the ideal co-operative commonwealth that is to be. The ideal of the future of course varies with the analysis of the present; prescription follows diagnosis. But, neglecting minor variations, socialism in this aspect may be defined as the demand for collective ownership and utilization of the means of production and for distribution of the social dividend in accordance with some principle of justice.

Finally, socialism involves a campaign against capitalism. Here variation is at the maximum. The tactics adopted have taken many forms, peaceful persuasion and armed revolt, parliamentarism and syndicalism, experimenting with "duodecimo editions of the New Jerusalem" and waiting for capitalism to dig its own grave. In each case the tactics in the campaign bear a necessary relation to the theoretical analysis consciously or unconsciously adopted and to the industrial and racial environment.

In each of these aspects—indictment, analysis, panacea, campaign—socialism is intelligible only as the antithesis of the competitive system. It has followed private property like its shadow. In every great period of social readjustment, where in the shifting of economic foundations and the decay of traditional moral restraints an untrammeled individualism temporarily asserts itself, we find an inevitable socialist reaction. Since it is within the past century or two, the period since what is called pre-eminently the Industrial Revolution, that the economic motive has most widely dominated men's activities the world over, and that within the economic field the spirit of individualism has had freest play, it is within this same period that socialism has reached fullest and clearest development.

II. THE SOCIALIST INDICTMENT

It is in their indictment of the existing order that socialists are most in harmony. Theorists who are poles apart in the remedies or the tactics they propose join forces in anathematizing the common enemy. There is, of course, wide variation in the relative emphasis laid on the different counts, a variation corresponding to some extent to the differences in the analytical viewpoints adopted: to one school the parasitical middleman is the worst offender, to another the exploiting capitalist; to one the anarchy of production is the rock of offense, to another the unfairness of distribution; the moralist bemoans the low ethical standards of a competitive society, and the artist the hideousness of its products. But the ammunition is freely exchanged; whatever the main charge be, the more ills that can be laid at the door of competition and private property the better. So the twentieth-century socialist repeats the fiery denunciations of John Ball, and Morris and Marx find common ground.

The success of socialist agitation depends not merely on the existence of serious industrial evils, but on the readiness of the masses of men to hearken to a gospel of discontent. Before reviewing the objective facts of modern industrial life against which criticism is directed, it is advisable to consider the subjective factor. However black the ills that are charged against capitalism, few socialists will contend that misery and oppression are new in the world. To understand why a fiercer resentment, a wider revolt prevails today than ever before in history, it is necessary first to glance at the psychology of modern social unrest.

Not least important among the causes of the increasing discontent is the betterment in the condition of the masses. Spencer has called attention to the curious paradox that frequently "the more things improve the louder become exclamations about their badness." So with the condition of the average workingman of today as compared with that of his ancestors. It is beyond question that wages are higher, hours are shorter, housing is better, the death-rate lower. The state and private and institutional philanthropy have been active to unparalleled degree providing for him free education, free museums, free parks. Yet all these betterments have merely served to whet the appetite for more, to nourish the spirit of resistance, to foster a "divine discontent." The hopelessness of utter poverty and ignorance crushes; a half advance rouses fierce demand.

At the same time that ambition is stirred, the goal tantalizingly recedes into the distance. Not merely is demand stiffened; its scope is immensely widened. The higher pedestal has opened new horizons: heavens undreamed of have been glimpsed. The growth of your wants outfoots the growth of your ability to supply them. A smaller proportion of your demand is effectual, as the economists remark. For your standard is set, not by your outgrown self, nor by your ancestor dead and gone, but by the more fortunate about you. Standards have advanced faster than incomes. The luxuries of yesterday become today's necessities. More and more, home services and preparations are replaced by the tempting but expensive conveniences of the open market. Speed and up-to-dateness must be had at any cost.

Democracy sharpens the sting of economic inequality. Equal votes suggest equal purses. By a taking analogy industrial democracy appeals as the inevitable complement of political democracy. Plutocratic prejudices against the ability of the people to govern themselves in the matter of making a living must go the way of outworn aristocratic prejudices against the people's ability to govern themselves in affairs of state. When men are born and work and die within the limits of caste, and are trained to pray Providence to keep them in their proper stations and bless the Squire and his relations, it is only the few hardiest spirits who dream of questioning the justice of their lot. But when the barriers of caste are down, and democratic theory teaches that every man is as good as his neighbor, then the case is altered. It may well be that the gap between modern millionaire and tenement dweller is less than the gap between mediaeval lord and peasant, but the peasant did not compare himself with his lord.

At the same time the old ties which had enforced content have weakened. In Europe the church has long been the bulwark of Things as They Are. The teaching of Jesus as to the future life has not rarely been perverted into a consolation offer for the losers in this world's race. Let Lazarus content himself with the crumbs from Dives' table in this brief second we call time, and through eternity he shall inherit pearly mansions, and may look down on Dives vainly striving to enter the needle's eye or writhing in hell-fire. Lassalle's gibe about payment by checks on the Bank of Heaven had enough truth in it to hurt. The church today is reawakening to her social duty, but the harm has been done

The massing of men in great cities, subject to the socializing influence of the factory and the amusement park, tends in the same direction. The isolated farmer or the artisan in his self-sufficient, impervious village group clings tenaciously to an individualist ideal. The tenement dweller or the mine worker, cut loose from his native environment, acted on every hour by socializing influences, turns more readily to socialism.

More subtle and pervasive is the effect ascribed to machine industry itself. Professor Veblen assigns to the machine process a disciplinary and selective effect on the habits of thought of the workmen closest in touch with it. Their reasoning comes to run in terms, not of anthropomorphism and conventional precedent, but of "opaque, impersonal cause and effect." Arguments based on authenticity and usage or even on the once revolutionary basis of natural rights cease to have meaning. Especially does the "natural rights institution of property" fall into disfavor. Without pressing the point unduly, it seems undeniable that it is only among the industrial classes of the industrial nations that socialism has won wide adherence. Men engaged in pecuniary rather than in industrial employments, though equally propertyless, are immune.

The miracles of nineteenth-century science have helped to accustom men's minds to schemes of revolutionary change. We have mastered nature, have weighed the sun and flashed messages across the ocean, have harnessed steam and electricity to do our bidding, and shrunk the huge earth's circumference to a forty-day Cook's tour. To optimistic minds it seems but child's play, compared with such achievements, to alter the economic system under which we live.

Finally it may be noted what facilities for propaganda have been created by the new mobility of labor, the ease of transportation, the rise of the popular press. The barriers which a few centuries ago made it possible to isolate a radical force have broken down; now all the world's the stage. Criticism has proved a commercial success: the press prefers ten proletarian coppers to one plutocratic nickel. The fierce yellow light that beats upon a multi-millionaire keeps the sins of wealth ever before us.

Thus socialism has found the ground ready for the seed of discontent. What seed has been sown? What are the chief counts in the indictment brought against capitalism?

Applying first the touchstone of efficiency in the production of material goods, it is charged that the competitive system has lamentably failed. The provision of society's requirements as a by-product of individual self-seeking has broken down. Private profit is far from coinciding with social gain.

In the first place, it is charged, *laissez-faire* breaks down in that wide range of cases where utilities of undeniable importance are not provided because incapable of private appropriation and sale. The importance of forest preservation for conserving moisture is undeniable. But climate and rainfall cannot be packaged and trafficked in, and so our forests are swept down by axe and fire. A lighthouse might be absolutely essential on some dangerous promontory, but profit-making enterprise would halt if circumstances made it impossible to collect a toll from benefited ships.

Even more serious is the loss entailed when the lure of profit attracts too large, rather than too small, a proportion of the community's working forces into particular channels. Conservative trust apologists have helped radical socialist critics to make the wastes of competition a commonplace in our thinking. The middleman is again under suspicion, as in the days when forestallers, engrossers, and regraters troubled the common weal. The contrast between the planless distribution of milk by a score of competing dealers serving a single street, and the systematic distribution of mail by a central authority, has grown hoary in socialist service. Especially in the field of public utilities, where increasing returns are the rule, the waste of competition is obvious—in parallel railroads, competing gas companies, duplicated electric light or power plants.

Competitive selling-costs bulk very large in the "cost of production" of all commodities. This is clearest in the case of advertising. To a varying extent modern advertising is doubtless informative, guiding and stimulating the wants of customers. But for the most part it is merely competitive, catering to existing wants. Such advertising "does not add to the serviceability of the output, unless it be incidentally and unintentionally. . . . It gives vendibility, which is useful to the seller, but has no utility to the last buyer." Conservative economists estimate this waste at half the selling-price in many lines. In great part the work of office force and field force is equally void of social utility. Nor is the waste ended when the deal is closed: the Chicago manufacturer may have sold his goods in New York, and the New York manufacturer in Chicago, so that the item of cross-freights, serious in bulky wares, is still to be reckoned. For further details of competitive waste we have only to consult the latest trust prospectus.

Nowhere, the indictment continues, does capitalism break down more conspicuously than in the equilibration of demand and supply. Production in competitive society is planless and anarchical. Haphazardly scattered producers prepare to meet the guessed-at demands of world-wide consumers. The adjustment is never exact. At times it fails utterly, in the periodical crises which throw the industrial mechanism hopelessly out of gear. "Commerce is at a standstill, the markets are glutted, hard cash disappears, factories are closed, the mass of the workers are in want of the means of subsistence."

The case for competition is no more favorable when we turn from quantity to quality of products. "Adulteration is a form of competition," was the frank apology offered by John Bright. The advance of science and original sin have made it possible to counterfeit almost every article of common household use, the more easily because of the lack of experience of the final purchaser. Even in Tennyson's day "chalk and alum and plaster were sold to the poor for bread," and the wooden nutmeg had rechristened a state. But the amateur and unsophisticated efforts of half a century ago pale before the accomplishments of today—the red raspberry jam which once was gelatin, analine, and timothy seed; the prune-juice and fusel oil masquerading as whiskey; the chicory in the coffee and the pea-hulls in the chicory; the artificial oils in the flavoring-extracts; the labels we drink at champagne prices; the shoddy we are clothed in and the paper soles we walk on; the "Corot" on our walls with its paint scarce dry.

Nor is it only in the selling of commodities that this fraud is charged. "The genius of graft," declares a socialist satire, "manifests itself in nearly all branches of human activity. Wherever something can be got for nothing, wherever a pinch or a squeeze of extra profit can be made in a transaction, wherever falsehood can be made to do duty for truth, a pretense for accomplishment or service, there is observed a metamorphosis of the protean genius of Graft" —the petty graft of the hackman or waiter, of the loan shark or the quack physician or the shyster lawyer, of the fake instalment trade or diploma factory.

Even where the quality of the wares is honest enough, they have lost all semblance of art or seemliness. The craftsman's pride in his work has given place to the profit-monger's preoccupation with his ledger.

Financial fraud is rated more serious even than commercial. As credit and corporations count for more and more, the openings for manipulation widen. The way is clear for promotion, running the gamut from the downright swindle of the cent-a-share mining company to the honest graft of respectable over-capitalization. The company once formed, the divergence of interest between director and shareholder, temporary controller and permanent owner, tempts to all the thousand and one devices of manipulation.

So much for the efficiency of the competitive system as a means of producing the greatest possible amount of useful material goods. Rated even in terms of goods and gear it is condemned. What is the loss and gain computed in terms of human life, what the conditions under which the mass of men labor to produce this wealth, what their share in the product and the consequent measure of material comfort and well-being attainable? Here the indictment becomes more serious and more passionate. For the vast majority, it is urged, competition and capitalism spell misery and failure, a precarious lifelong battle with hunger, stunted and narrowed development, premature death or cheerless old age.

Considering first the conditions under which men earn their living, the socialist finds the majority sunk in "wage slavery." The capitalist's control of all the opportunities of labor gives him power more tyrannous than the slave-owner of old ever held. No legal bond compels the modern workman to labor for his masters, but the monopoly of the means of livelihood is stronger than any parchment right. The main difference between the old and the new slavery is that the modern slave-driver is under no obligation to keep his "hands" from starving. It is for the capitalist, and the capitalist alone, to decide when and where work shall be begun, who shall and shall not be employed, what the manner of working shall be.

It is not only from lack of freedom that the modern workman suffers. The work which he does at another's bidding is drearily monotonous work. The factory system means for the average workman cramping and dispiriting routine, a pitifully limited horizon, the repression of all latent power not needed for the mechanical day's work. Individuality is sacrificed on the altar of efficient production.

The factory system not only robs the workman of freedom and of interest in his task, the arraignment continues, but subjects him to exhausting and dangerous toil. The long hours which the greed for dividends wrings from the workers use up every ounce of vitality, prevent that rounded development which can come only with moderate leisure, and wear life out at such a rate that at fifty the victim must be discarded for a younger man, scrapped like outworn machinery. The danger of fatal or crippling accident is ever present, with small possibility of redress against the battalioned lawyers of the employer or liability company, and with certainty of distress and privation for the family whose breadwinner is helpless.

And for this unremitting, maiming, and precarious toil, what share falls to the workingman when the time for the distribution of the joint product comes? What possibilities of decent and comfortable livelihood are placed at his disposal? So small a share, it is charged, that for the mass of the workers the existing order means lifelong poverty. What wealth is produced is distributed with gross and incredible unfairness. To the few, untold millions are given, unlimited command over the lives and services of their fellows, opportunity for boundless luxury and maddening display; to the many, a starving pittance which barely holds body and soul together and shuts out all hope of development and culture.

"In the United Kingdom," concludes a recent socialistic investigator (Chiozza-Money), "out of a population of 43,000,000, as many as 38,000,000 are poor. . . . . The United Kingdom is seen to contain a great multitude of poor people veneered with a thin layer of the comfortable and the rich. . . . . About one seventieth part of the population owns far more than one-half of the entire accumulated wealth, public and private, of the United Kingdom." And even in the United States, with its comparative freedom from caste and inherited privilege, and its half a fertile continent to exploit, another socialist (Hunter) charges that 10,000,000 people are sunk in poverty, 4,000,000 of them in receipt of relief.

The fractional share of the national dividend which falls to the manual workers makes it impossible to secure any more favorable surroundings for the hours of leisure than for the hours of work. For the pittance that can go for rent there are available only drably hideous, overcrowded, and unsanitary dwellings. Such housing conditions as these mean low vitality and constant exposure to infection, and in view of the workers' inability to obtain the needed rest or change of air or expert attention, involve a death-roll out of all proportion.

What is the effect of competitive industrialism on moral life? Here again the tally against capitalism is marked deep in the socialist stick. "Next to intemperance in the enjoyment of intoxicating liquors," declares Engels, "one of the principal faults of English workingmen is sexual license. But this too follows with relentless logic, with inevitable necessity, out of the position of a class left to itself, with no means of making fitting use of its freedom. The bourgeoisie has left the working class only these two pleasures, while imposing upon it a multitude of labors and hardships, and the consequence is that the workingmen, in order to get something from life, concentrate their whole energy upon these two enjoyments, carry them to excess, surrender to them in the most unbridled manner." The insufficiency of the wages upon which many a hard-working girl is supposed to keep body and soul together forces recourse "to the oldest trade in the world. Not till we measure [this element in wages] will the world know the true cost of 'cheap labor.'" Family life becomes impossible, what with the absence of the father and often of the mother all day long, the frequency of marriage merely for the support which the woman cannot otherwise obtain, the promiscuity and crowding of the workers' homes.

And then society adds insult to injury by blaming on the individual the lapses its own perverse social arrangements have caused.

267. THE NATIONAL PLATFORM OF THE SOCIALIST PARTY[1]

The representatives of the Socialist party in National Convention at Indianapolis, declare that the capitalist system has outgrown its historical function, and has become utterly incapable of meeting the problems now confronting society. We denounce this outgrown system as incompetent and corrupt and the source of unspeakable misery and suffering to the whole working class.

Under this system the industrial equipment of the Nation has passed into the absolute control of a plutocracy which exacts an annual tribute of millions of dollars from the producers. Unafraid of any organized resistance, it reaches out its greedy hands over the still undeveloped resources of the Nation—the land, the mines, the forests, and the water powers of every State in the Union.

In spite of the multiplication of labor-saving machines and improved methods in industry which cheapen the cost of production, the share of the producers grows ever less, and the prices of all the necessities of life steadily increase. The boasted prosperity of this Nation is for the owning class alone. To the rest it means only greater hardship and misery. The high cost of living is felt in every home. Millions of wage-workers have seen the purchasing power of their wages decrease until life has become a desperate battle for mere existence.

Multitudes of unemployed walk the streets of our cities or trudge from State to State awaiting the will of the masters to move the wheels of industry.

The farmers in every State are plundered by the increasing prices exacted for tools and machinery and by extortionate freight rates and storage charges.

Capitalism denounced.—Capitalist concentration is mercilessly crushing the class of small business men and driving its members into the ranks of propertyless wage-workers. The overwhelming majority of the people of America are being forced under a yoke of bondage by this soulless industrial despotism.

It is this capitalist system that is responsible for the increasing burden of armaments, the poverty, slums, child labor, most of the insanity, crime and prostitution, and much of the disease that afflicts mankind.

Under this system the working class is exposed to poisonous conditions, to frightful and needless perils to life and limb, is walled around with court decisions, injunctions and unjust laws, and is preyed upon incessantly for the benefit of the controlling oligarchy of wealth. Under it also, the children of the working class are doomed to ignorance, drudging toil and darkened lives.

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[1] Text of the platform adopted at Indianapolis, Ind., May 16, 1912.

In the face of these evils, so manifest that all thoughtful observers are appalled at them, the legislative representatives of the Republican and Democratic parties remain the faithful servants of the oppressors. Measures designed to secure to the wage-earners of this Nation as humane and just treatment as is already enjoyed by the wage-earners of all other civilized nations have been smothered in committee without debate, and laws ostensibly designed to bring relief to the farmers and general consumers are juggled and transformed into instruments for the exaction of further tribute. The growing unrest under oppression has driven these two old parties to the enactment of a variety of regulative measures, none of which has limited, in any appreciable degree, the power of the plutocracy, and some of which have been perverted into means for increasing that power. Anti-trust laws, railroad restrictions and regulations, with the prosecutions, indictments, and investigations based upon such legislation, have proved to be utterly futile and ridiculous.

Nor has this plutocracy been seriously restrained or even threatened by any Republican or Democratic executive. It has continued to grow in power and insolence alike under the administrations of Cleveland, McKinley, Roosevelt, and Taft.

In addition to this legislative juggling and this executive connivance, the courts of America have sanctioned and strengthened the hold of this plutocracy as the Dred Scott and other decisions strengthened the slave power before the Civil War.

We declare, therefore, that the longer sufferance of these conditions is impossible, and we purpose to end them all. We declare them to be the product of the present system in which industry is carried on for private greed, instead of for the welfare of society. We declare, furthermore, that for these evils there will be and can be no remedy and no substantial relief except through socialism, under which industry will be carried on for the common good and every worker receive the full social value of the wealth he creates.

Society is divided into warring groups and classes, based upon material interests. Fundamentally, this struggle is a conflict between the two main classes one of which, the capitalist class, owns the means of production, and the other, the working class, must use these means of production on terms dictated by the owners.

The capitalist class, though few in numbers, absolutely controls the Government—legislative, executive, and judicial. This class owns the machinery of gathering and disseminating news through its organized press. It subsidizes seats of learning—the colleges and schools—and even religious and moral agencies. It has also the added prestige which established customs give to any order of society, right or wrong.

The working class, which includes all those who are forced to work for a living, whether by hand or brain, in shop, mine, or on the soil, vastly outnumbers the capitalist class. Lacking effective organization and class solidarity, this class is unable to enforce its will. Given such class solidarity and effective organization, the workers will have the power to make all laws and control all industry in their own interest.

All political parties are the expression of economic class interests. All other parties than the Socialist party represent one or another group of the ruling capitalist class. Their political conflicts reflect merely superficial rivalries between competing capitalist groups. However they result, these conflicts have no issue of real value to the workers. Whether the Democrats or Republicans win politically, it is the capitalist class that is victorious economically.

Socialism the expression of the workers.—The socialist party is the political expression of the economic interests of the workers. Its defeats have been their defeats and its victories their victories. It is a party founded on the science and laws of social development. It proposes that, since all social necessities today are socially produced, the means of their production and distribution shall be socially owned and democratically controlled.

In the face of the economic and political aggressions of the capitalist class the only reliance left the workers is that of their economic organizations and their political power. By the intelligent and class-conscious use of these, they may resist successfully the capitalist class, break the fetters of wage slavery, and fit themselves for the future society, which is to displace the capitalist system. The Socialist party appreciates the full significance of class organization and urges the wage-earners, the working farmers and all other useful workers everywhere to organize for economic and political action, and we pledge ourselves to support the toilers of the field as well as those in the shops, factories, and mines of the Nation in their struggles for economic justice.

In the defeat or victory of the working class party in this new struggle for freedom lies the defeat or triumph of the common people of all economic groups, as well as the failure or the triumph of popular government. Thus the Socialist party is the party of the present-day revolution, which marks the transition from economic individualism to socialism, from wage slavery to free co-operation, from capitalist oligarchy to industrial democracy.

Working programme.—As measures calculated to strengthen the working class in its fight for the realization of its ultimate aim, the Co-operative Commonwealth, and to increase its power of resistance against capitalist oppression, we advocate and pledge ourselves and our elected officers to the following programme:

Collective ownership.—First: The collective ownership and democratic management of railroads, wire and wireless telegraphs and telephones, express service, steamboat lines and all other social means of transportation and communication and of all large-scale industries.

Second: The immediate acquirement by the municipalities, the States or the Federal Government of all grain elevators, stock yards, storage warehouses, and other distributing agencies, in order to reduce the present extortionate cost of living.

Third: The extension of the public domain to include mines, quarries, oil wells, forests, and water power.

Fourth: The further conservation and development of natural resources for the use and benefit of all the people:

(*a*) By scientific forestation and timber protection.

(*b*) By the reclamation of arid and swamp tracts.

(*c*) By the storage of flood waters and the utilization of water power.

(*d*) By the stoppage of the present extravagant waste of the soil and of the products of mines and oil wells.

(*e*) By the development of highway and waterway systems.

Fifth: The collective ownership of land wherever practicable, and in cases where such ownership is impracticable, the appropriation by taxation of the annual rental value of all land held for speculation or exploitation.

Sixth: The collective ownership and democratic management of the banking and currency system.

Unemployment.—The immediate Government relief of the unemployed by the extension of all useful public works. All persons employed on such works to be engaged directly by the Government under a work day of not more than eight hours and at not less than the prevailing union wages. The Government also to establish employment bureaus; to lend money to States and municipalities, without interest, for the purpose of carrying on public works, and to take such other measures within its power as will lessen the widespread misery of the workers caused by the misrule of the capitalist class.

Industrial demands.—The conservation of human resources, particularly of the lives and well-being of the workers and their families:

First: By shortening the work day in keeping with the increased productiveness of machinery.

Second: By securing to every worker a rest period of not less than a day and a half in each week.

Third: By securing a more effective inspection of workshops, factories and mines.

Fourth: By forbidding the employment of children under sixteen years of age.

Fifth: By abolishing the brutal exploitation of convicts under the contract system and prohibiting the sale of goods so produced in competition with other labor.

Sixth: By forbidding the interstate transportation of the products of child labor, of convict labor and of all uninspected factories and mines.

Seventh: By abolishing the profit system in Government work, and substituting either the direct hire of labor or the awarding of contracts to co-operative groups of workers.

Eighth: By establishing minimum wage scales.

Ninth: By abolishing official charity and substituting a non-contributory system of old-age pensions, a general system of insurance by the State of all its members against unemployment and invalidism and a system of compulsory insurance by employers of their workers without cost to the latter, against industrial diseases, accidents, and death.

Political demands.—First: The absolute freedom of press, speech, and assemblage.

Second: The adoption of a graduated income tax, the increase of the rates of the present corporation tax and the extension of inheritance taxes, graduated in proportion to the value of the estate and to nearness of kin—the proceeds of these taxes to be employed in the socialization of industry.

Third: The gradual reduction of all tariff duties particularly those on the necessities of life. The Government to guarantee the re-employment of wage-earners who may be disemployed by reason of changes in tariff schedules.

Fourth: The abolition of the monopoly ownership of patents and the substitution of collective ownership, with direct rewards to inventors by premiums or royalties.

Fifth: Unrestricted and equal suffrage for men and women.

Sixth: The adoption of the initiative, referendum and recall, and of proportional representation, nationally as well as locally.

Seventh: The abolition of the Senate and of the veto power of the President.

Eighth: The election of the President and Vice-President by direct vote of the people.

Ninth: The abolition of the power usurped by the Supreme Court of the United States to pass upon the constitutionality of the legislation enacted by Congress. National laws to be repealed only by act of Congress or by a referendum vote of the whole people.

Tenth: The abolition of the present restrictions upon the amendment of the Constitution, so that that instrument may be made amendable by a majority of the voters in a majority of the States.

Eleventh: The granting of the right of suffrage in the District of Columbia with representation in Congress and a democratic form of municipal government for purely local affairs.

Twelfth: The extension of democratic government to all United States territory.

Thirteenth: The enactment of further measures for general education and particularly for vocational education in useful pursuits. The Bureau of Education to be made a department.

Fourteenth: The enactment of further measures for the conservation of health. The creation of an independent Bureau of Health, with such restrictions as will secure full liberty to all schools of practice.

Fifteenth: The separation of the present Bureau of Labor from the Department of Commerce and Labor and its elevation to the rank of a department.

Sixteenth: Abolition of all Federal District Courts and the United States Circuit Courts of Appeals. State courts to have jurisdiction in all cases arising between citizens of the several States and foreign corporations. The election of all judges for short terms.

Seventeenth: The immediate curbing of the power of the courts to issue injunctions.

Eighteenth: The free administration of justice.

Nineteenth: The calling of a convention for the revision of the Constitution of the United States.

Such measures of relief as we may be able to force from capitalism are but a preparation of the workers to seize the whole powers of government, in order that they may thereby lay hold of the whole system of socialized industry and thus come to their rightful inheritance.

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